

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1948



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
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May, 1949

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HELMINTHOLOGICAL ABSTRACTS

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Abstracts in the present number are by :

J. J. C. Buckley
Phyllis A. Clapham
H. Crusz
A. E. Fountain
Mary T. Franklin
J. B. Goodey

T. Goodey
J. T. Greaves
J. W. G. Leiper
R. T. Leiper
B. G. Peters
C. Rayski

Enid M. Smedley

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HELMINTHOLOGICAL ABSTRACTS

Vol. 17, Part 3

1948

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HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1948

Vol. 17, Part 3

142—Acta Pathologica et Microbiologica Scandinavica.

a. THORBORG, N. B., TULINIUS, S. & ROTH, H., 1948.—“Trichinosis in Greenland.” 25 (4), 778-794.

(142a) About 300 natives of western Greenland suffered from trichinelliasis, and of these 33 died in outbreaks which occurred in the district around Disco Bay and Holsteinsborg between January and May, 1947. The symptoms corresponded generally with the usual descriptions but the earlier cases were diagnosed as typhoid fever. The source of infection was not definitely ascertained but the evidence pointed to walrus and possibly white whale. Although trichinelliasis has not been recorded previously from Greenland the authors show, by serological tests on survivors, that a serious outbreak of “atypical typhoid fever” reported from Sukkertoppen in 1944 and a similar outbreak near Nugssuak in 1933 attributed to “ptomaine poisoning” were undoubtedly due to trichinelliasis. An examination of meat samples from various Greenland mammals by the staff of the Royal Veterinary and Agricultural College in Copenhagen revealed trichina infection in 41 out of 54 sledge dogs from western Greenland, in 2 out of 3 polar bears from the Thule district, and in 4 out of 13 polar bears from the east Greenland coast, while trichina larvae were found in the single specimen examined of the bearded seal (*Erignathus barbatus*). R.T.L.

143—Acta Pharmacologica et Toxicologica. Copenhagen.

a. STEWARD, J. S., 1948.—“The reduced anthelmintic effect of tetrachlorethylene in oily solution.” 4 (2), 127-129.

(143a) Using rats experimentally infected with *Nippostrongylus muris*, Steward found that whereas tetrachlorethylene in an aqueous suspension showed a 95% efficacy, in arachis oil or liquid paraffin its anthelmintic action was completely inhibited and in herring oil it was reduced from 80% to 10%. This confirms the view of Trim & Alexander that the blocking is due to increased interfacial tension between the anthelmintic and the vehicle, with less distribution to the parasite. R.T.L.

144—Agricultura Técnica. Chile.

a. TAGLE V., I. & OLIVARES C., J., 1948.—“La fenotiacina y el yodo en el tratamiento de la dictiocaulosis ovina.” 8 (1), 36-54.

(144a) Soluble phenothiazine suspended to a concentration of 2% or 20% in equal parts of glycerin and 95% alcohol, was much less effective than iodine solutions when injected intratracheally into sheep and lambs with *Dictyocaulus filaria*. Some fatalities occurred due to bronchial occlusion with phenothiazine particles, and some late pneumonia was ascribed to the irritant action of the glycerin-alcohol mixture. Commercial phenothiazine suspended in glycerin and water was ineffective. E.M.S.

145—Agricultural Gazette of New South Wales.

a. MACPHERSON, O. M., 1948.—“Worm diseases in pigs. Methods of prevention and control.” 59 (9), 449-453; (10), 542-546; (11), 573-576.
b. ANON., 1948.—“New plant diseases.” 59 (10), 530, 536.
c. DENYER, R. C., 1948.—“Hydatid disease.” 59 (11), 577-579.

(145b) *Heterodera marioni* in the athel tree (*Tamarix aphylla*) is among new plant diseases recorded for the first time in New South Wales during the six months ended June 30, 1948.

R.T.L.

146—American Journal of Pathology.

a. BRACKEN, M. M., BAILEY, Jr., W. R. & THOMAS, Jr., H. M., 1948.—“The lesions of schistosomiasis japonica.” 24 (3), 611-623.

(146a) The lesions of schistosomiasis japonica in man resemble closely those seen in experimental animals. The early lesions around the eggs in the tissues represent an unusual and characteristic reaction to the viable egg consisting chiefly of eosinophilic leucocytes; sometimes there is a fairly wide zone of tissue necrosis. Epithelioid cells appear and multi-nucleated giant cells engulf the egg. The inflammatory cellular response changes to one in which lymphocytes and plasma cells predominate. Fibroblastic and capillary proliferation in the periphery begin early and later fibrosis with lymphocytic infiltration occurs around the shrunken or calcified egg. These later stages resemble foreign body reaction.

R.T.L.

147—American Journal of Tropical Medicine.

a. MALDONADO, J. F. & ACOSTA-MATIENZO, J., 1948.—“Biological studies on the miracidium of *Schistosoma mansoni*.” 28 (5), 645-657.
 b. MAO, C. P., 1948.—“A review of the epidemiology of schistosomiasis japonica in China.” 28 (5), 659-672.

(147a) Maldonado & Acosta-Matiengo investigated the hatchability, longevity and infectivity of the miracidia of *Schistosoma mansoni* in the laboratory. Out of a total of 1,971 eggs 83.6% hatched; of these, 89% hatched in the first 24 hours, 9.5% in the second 24 hours and 1.5% early on the third day. The average span of life of miracidia was between 5 and 6 hours and none survived for 9 hours. Those hatching in the first 24 hours lived longer than those hatching after a longer period. Infectivity was tested by exposing the snail, *Australorbis glabratus*, to the miracidia. It was observed that 71.8% of 103 miracidia penetrated the snail immediately after hatching and that this proportion decreased gradually and reached zero after 8-9 hours of free life. About two-thirds of the miracidia attacked and penetrated the head-foot organ of the snail and the remainder chose the tentacles and mouth collar in the proportions of 27.3% and 6.4% respectively.

J.J.C.B.

(147b) Mao discusses the geographical distribution of schistosomiasis japonica in China and enumerates the reservoir hosts of which horses and pigs, contrary to the findings in Japan and the Philippine Islands, have never been found naturally infected in China. He lists the distribution of the human disease in a comprehensive table according to provinces and infected hsiens, and tabulates positive records of its incidence and distribution in reservoir hosts. From hospital records, general surveys and schistosomiasis surveys the incidence is tabulated for different localities. Information as to age and sex incidence is condensed from a variety of sources, and also the incidence in different occupational groups. These reveal that rice-farmers are by far the most important group. Available data are presented as to the distribution, dissection records and seasonal infection rate of the snail intermediaries. The bionomics of the molluscan hosts and other factors concerned in transmission are discussed. A list of 121 references is appended.

J.J.C.B.

148—American Potato Journal.

a. MAI, W. F. & LOWNSBERY, Jr., B. F., 1948.—“Studies on the host range of the golden nematode of potatoes, *Heterodera rostochiensis* Wollenweber.” 25 (8), 290-294.

(148a) In 1946 Mai & Lownsbery grew 34 varieties of potato in soil heavily infested with *Heterodera rostochiensis*. When the female nematodes were beginning to turn from white to yellow the roots were dug, and the immature cysts washed off and counted. None of the potato varieties showed appreciable resistance to the nematode. By the same method 171 species of flowering plants from 39 families were tested, but only the 43 tomato varieties and *Solanum dulcamara* bore female nematodes. In addition the roots of some of the species of plants were

stained but no nematode positively identifiable as a *Heterodera* larva was found. In 1947 16 varieties of potato and 6 of tomato were grown in replicated randomized infested plots, and the numbers of *Heterodera* females on the roots were counted. The tomatoes proved to be significantly less strongly attacked than the potatoes. The difference was greater when the infection index was taken as the number of females per root system rather than the number of females per gramme of root tissue.

M.T.F.

149—Anales de la Facultad de Medicina de Montevideo.

a. PIAGGIO BLANCO, R. A., FERNÁNDEZ CHAPELA, A. & PASEYRO, P., 1948.—“Triquinosis.” *33* (1/2), 135–160.

150—Anatomical Record.

a. DOUGHERTY, E. C. & CALHOUN, H. G., 1948.—“Techniques for temporarily freeing soil nematodes from bacteria by the use of antibiotics and merthiolate.” [Abstract of paper presented at the 44th Annual Meeting of the American Society of Zoologists, Chicago, Ill., December 29–31, 1947.] *100* (3), 395.

(150a) Dougherty & Calhoun briefly describe a method for freeing soil nematodes from bacteria. It consists essentially in (i) shaking up specimens, removed from an agar slope culture, in a few c.c. of water and their removal for 24 hours to broth containing 5,000 u. of penicillin and 5,000 u. of streptomycin per c.c., (ii) small larvae are transferred to sterile water and then to 1 : 1,000 aqueous merthiolate solution, (iii) after one hour viable larvae are transferred to sterile water with 1,000 u. penicillin per c.c. Groups of 5–10 larvae are then put on to nutrient agar slopes streaked with *Escherichia coli* on which *Rhabditis pellio* grew successfully.

T.G.

151—Animal Health Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON., 1948.—“Husk or hoose in calves.” No. 14, 2 pp. [Revision of *Adv. Leaflet. Minist. Agric. Fish., Lond.*, 1946, No. 15.]

152—Annales de la Société Belge de Médecine Tropicale.

a. DUBOIS, A., 1948.—“Notes sur la répartition de *D. streptocerca* autour de Pawa (Nepoko).” *28* (2), 151–153.
 b. JANSENS, P. G., 1948.—“De ‘A.E.X.’ concentratie methode voor wormeneieren.” *28* (2), 213–220. [French summary pp. 219–220.]
 c. WANSON, M., 1948.—“Notes sur le comportement de *S. albivirgulatum* Wanson et Henrard.” *28* (2), 279–285.
 d. ZANETTI, V., 1948.—“Traitement de certains phénomènes allergiques d’origine filarienne par auto-allergène urinaire.” *28* (2), 287–291. [Discussion p. 292.]

(152a) *Dipetalonema streptocerca* is widespread in natives around Pawa, Belgian Congo. The probable vector is a Culicoides. A table shows the incidence in a small series of natives examined, of *Microfilaria perstans*, *Mf. loa*, *Mf. streptocerca* and *Mf. volvulus*, the last-named being rare in the district.

E.M.S.

(152b) Janssens recounts his experience of the acid-ether-xylool (A.E.X.) modification of the Telemann technique, as described by Loughlin & Stoll [see *Helm. Abs.*, **15**, No. 159b]. In faecal examinations of 129 men, 33 women and 38 children with moderately heavy worm burdens he found an average enrichment of 8·2 times as compared with the direct smear. Protozoa did not appear in the preparations.

E.M.S.

(152c) Wanson confirms that the development of *Onchocerca volvulus* in *Simulium albivirgulatum* is abortive, being arrested in the body-cavity or the thoracic musculature at the “sausage” stage.

E.M.S.

(152d) Zanetti has successfully treated four cases of Calabar swellings associated with *Loa loa* and four cases of prurigo and lichenification of the skin in onchocerciasis. Each patient received two subcutaneous injections, at one week’s interval, of 0·3 c.c. of a 1 : 1,000,000 dilution of an auto-allergen obtained by ether-alcohol extraction of his own urine. The method of preparation and use of the auto-allergen is described in detail. An infant was successfully treated with allergen from its mother.

E.M.S.

153—Annals of Tropical Medicine and Parasitology.

- a. COWPER, S. G., 1948.—“The effect of certain inorganic and vegetable substances on the English pond snail *Planorbis corneus* (Linné, 1758).” **42** (2), 119-130.
- b. CHWATT, L. J., GORDON, R. M. & JONES, C. M., 1948.—“The breeding-places of *Chrysops silacea*.” **42** (2), 251.

(153a) Copper salts, including the sulphate, acetate and chloride, metallic copper, and copper ores especially those containing malachite, were toxic or lethal to *Planorbis corneus*. Extracts of *Balanites*, *Randia* and *Quillaja* contain a molluscicidal principle. R.T.L.

(153b) In the British Cameroons the breeding places of *Chrysops silacea*, vector of *Loa loa*, are confined to densely shaded areas of streams where the larvae are located in mud, rarely more than 3 inches from the surface, in layers of decaying leaves. R.T.L.

154—Archives Internationales de Pharmacodynamie et de Thérapie.

- a. FROMMEL, E., BECK, I. T., FAVRE, M. & VALLETTE, F., 1948.—“De l'action cholinergique de la santonine. 1^{re} mémoire.” **75** (3/4), 339-345.
- b. FROMMEL, E., BECK, I. T., FAVRE, M. & VALLETTE, F., 1948.—“La santonine a-t-elle une prévalence d'action sur le système nerveux du lombric? A propos de l'action cholinergique de la santonine. 2^{me} mémoire.” **75** (3/4), 346-352.

(154a) Frommel et al. have studied the various aspects of the cholinergic action of santonin, which they consider may be significant in the toxic manifestations of this anthelmintic. E.M.S.

(154b) Frommel et al. conclude that cholinergic action is a minor property of santonin, and uphold the classic theory that its anthelmintic action is a specific action on the nervous system of the parasite. E.M.S.

155—Archives of Neurology and Psychiatry. Chicago.

- a. KANE, C. A. & MOST, H., 1948.—“Schistosomiasis of the central nervous system; experiences in World War II and a review of the literature.” **59** (2), 141-183.

(155a) Schistosomiasis of the central nervous system is a rare clinical and pathological entity. Prior to October, 1944, the published cases numbered 24; their literature is reviewed. Between October, 1944, and May, 1946, 27 cases due to *Schistosoma japonicum* occurred in U.S. Army personnel and are reported by the authors. The evidence in 22 of the 27 cases was highly presumptive, being based on clinical symptoms only; in the remaining five cases the diagnosis was based on material removed at operation. A detailed study of 17 cases has now been completed. It is recommended that operative intervention should be made in cases with focal epileptic seizures and that all cases should receive antimony treatment to prevent the further deposition of eggs. R.T.L.

156—Archivos Venezolanos de Patología Tropical y Parasitología Médica.

- a. JAFFÉ, R., 1948.—“Anatomía patológica y patogénesis de la bilharziosis mansoni en Venezuela.” **1** (1), 32-62. [English summary pp. 59-60.]
- b. PIFANO C., F., 1948.—“La infección uni-sexual producida por *Schistosoma mansoni* en condiciones experimentales.” **1** (1), 63-72. [English summary pp. 71-72.]
- c. MAYER, M., 1948.—“Consideraciones sobre el tratamiento de la bilharziosis con preparados del antimonio. (Por las vías intravenosa, intramuscular, oral y rectal.)” **1** (1), 120-143. [English summary p. 140.]

(156a) In Venezuela the intestinal lesions due to *Schistosoma mansoni* infection differ from those seen in other countries. Usually there is only catarrhal colitis with oedema, small haemorrhages and few infiltrations; severe and extensive lesions are rare. Diffuse lesions in the liver, heart, intestine, spleen, vascular system, etc., are attributed to reaction to toxic material excreted by the parasites or to substances produced by the damaged organ. The myocarditis and liver cirrhosis are explainable on the latter hypothesis. The massive accumulation of eggs may obstruct capillaries of the intestinal wall and produce necrosis. Pulmonary and vascular lesions are of little clinical importance although of great theoretical interest. R.T.L.

(156b) Experimental infections of mice with cercariae of *Schistosoma mansoni*, obtained from *Australorbis glabratus* collected at San Casimiro, Estado Aragua, Venezuela, gave predominantly unisexual infections with male worms during the dry season whereas infections were bisexual when obtained from snails during the rainy season. When infected snails collected in the rainy season were submitted to the sun for 10 days until they were 50% dehydrated, the schistosomes produced in experimentally infected animals were predominantly male. R.T.L.

157—Arquivos de Biologia e Tecnologia. Paraná.

a. GIOVANNONI, M. & KUBIAK, G. V. L., 1948.—“Fauna parasitológica Paranaense. IV. Lista prévia da ocorrência de helmintos em animais domésticos.” Year 1947, 2, 225-231. [English summary p. 231.]

158—Australian Journal of Science.

a. BEARUP, A. J., 1948.—“Observations on the life cycle of *Diphyllobothrium (Spirometra) erinacei* in Australia (Cestoda: Diphyllobothriidae).” [Correspondence.] 10 (6), 183-184.

(158a) Mature *Diphyllobothrium erinacei* are common in foxes and cats, and probably widespread in wild carnivores in Australia. Plerocercoids are often found in snakes and lizards. A kitten fed with four plerocercoids from the body-cavity of a death adder (*Acanthophis antarctica*) showed eggs in the faeces 45 days later; from these *Mesocyclops obsoletus*, *Cyclops australis* and *Leptocyclops agilis* (?) were then successfully infected, but the last stages of the life-cycle were not completed.

R.T.L.

159—Berliner und Münchener Tierärztliche Wochenschrift.

a. JACOB, E., 1948.—“Parasitologische Notizen. 12. Lungenwurm-Fund beim Pferd.” Jahrgang 1948 (6), 68.
b. NIEDEREHE, H., 1948.—“Parasiten als Ursache von allergischen Herzveränderungen bei Schafen.” Jahrgang 1948 (7), 77-79.

(159a) Jacob records a massive infection with *Dictyocaulus arnfieldi* in the trachea and bronchi of a 2½-years-old Oldenburg horse. This species is very rare in Germany, and has only twice previously been reported from horses there.

A.E.F.

(159b) Histopathological examination of the hearts of 50 sheep showed histiocyte infiltration in every case. No degenerative changes were seen in the musculature, but individual muscle fibres were pressed apart by the histiocytes. These infiltrations are considered to be allergic reactions of which lungworm allergens are a possible cause. Niederehe sees here a possibility of using these allergens to set up an age immunity to certain parasites and thus control infection.

A.E.F.

160—Biológica. Chile.

a. WOLFFHÜGEL, K., 1948.—“*Ophiotaenia noei* n.sp. (Cestodae).” Año 1946, Fasc. 5, pp. 15-27. [English, French & German summaries pp. 23-24.]

(160a) *Ophiotaenia noei* n.sp. from *Calyptocephalus gayi* is distinguished from *O. ceratophrys* by an apical prominence on the scolex. It has 30-70 ramifications on each side of the uterine trunk whereas *O. ceratophrys* has only 20.

R.T.L.

161—Bollettino della Società Italiana di Medicina e Igiene Tropicale (Sezione Eritrea).

a. FERRO-LUZZI, G., 1948.—“Studio sulla bilarziosi intestinale da *Schistosoma mansoni* in Eritrea.” 8 (1/2), 5-18. [English summary p. 17.]

(161a) Ferro-Luzzi reports the presence of intestinal bilharziasis in the highlands of Eritrea, particularly in the villages between Asmara, Saganeiti and Adi Ugri. Other foci are suspected in the midlands. *Planorbis abyssinicus* and *P. ruppelli* were experimentally infected, and were also found naturally infected in pools in the villages. Morphological details are given of the adults, eggs and cercariae of *Schistosoma mansoni*. The prophylactic criteria most appropriate to this region are discussed.

R.T.L.

162—British Journal of Pharmacology and Chemotherapy.

- a. BALDWIN, E., 1948.—“A study of anthelmintic potency in relation to chemical constitution.” *3* (2), 91-107.
- b. HAWKING, F. & ROSS, W. F., 1948.—“Miracil D, its toxicology, absorption, and excretion in animals and human volunteers.” *3* (2), 167-173.

(162a) Using *Ascaris* preparations in which the muscle can be directly exposed to drug action, Baldwin has tested *in vitro* over 200 chemical compounds for anthelmintic action on the neuromuscular system. Among aliphatic-aromatic and aromatic-aromatic ketones none approached the activity of santonin, the efficacy of which is attributed to the simultaneous presence of ketonic and lactonic groups. Among the phenol derivatives examined the carbamates were the most potent; an unusually high order of potency occurred in 2-hydroxydiphenyl carbamate. Of the thiazoles 4-benzylpyridine, 2-2'-dipyridyl, and 4 : 5-phenanthroline were outstandingly active. None of the microbial antibiotics or sulphonamides tested proved of value. Phenothiazine and gentian violet failed to provoke any response; their action appears not to be upon the neuromuscular mechanism.

R.T.L.

(162b) This paper briefly recalls the history, chemistry and pharmacology of Miracil, shown by Kikuth et al. to have some curative value in experimental schistosomiasis. After oral administration to human volunteers it was found to be rapidly absorbed. The maximum tolerated dose for repeated administration was about 0.2 gm. per day. Overdosage induced nausea and prostration, insomnia and yellow discolouration of the skin and sclerotics, after a latent period of about one day. In animals prolonged overdosage produced degenerative changes in the liver and in the renal tubules. There was little tendency for the drug to accumulate in the body.

R.T.L.

163—British Medical Journal.

- a. ANON., 1948.—“The chemotherapy of filariasis.” [Annotation.] Year 1948, *2* (4565), 32-33.
- b. MELTON, G. & MONTUSCHI, E., 1948.—“Filariasis.” [Correspondence.] Year 1948, *2* (4571), 354-355.

(163a) The recent work on the treatment of filariasis by Culbertson et al. with antimony compounds, that of Welch and of Wright et al. with cyanine compounds, and of Hewitt et al. and Stevenson et al. with piperazine derivatives is briefly summarized. It is stated that one of the piperazines, named Hetrazan, appears to be the most active filaricide so far discovered for use in man.

R.T.L.

(163b) *Loa loa* infestation may only reveal itself several years after the patient has left the endemic area. In Britain the urticarial eruption and painless swellings may be mistaken for angioneurotic oedema.

R.T.L.

164—Bulletin de l'Académie Vétérinaire de France.

- a. GUILHON, J., 1948.—“Recherches sur les propriétés anthelmintiques de quelques dérivés de la thiodiphénylamine.” *21* (5), 227-232.
- b. GUILHON, J. & RIOUX, J., 1948.—“Essais de traitement de la dicrocoeliose ovine par les dérivés du triphénylméthane.” *21* (7), 303-307.

(164a) In further attempts to determine the active component of phenothiazine, Guilhon has tested twelve new derivatives obtained by oxidation or by the introduction of various fatty or aromatic radicals. Each substance was tested by administration to pigeons infested with *Ascaridia galli* in doses of 0.5 gm. and 1.5 gm. per kg. body-weight. Only one derivative, N-methylthiodiphenylamine, showed marked anthelmintic activity, about one-third that of phenothiazine.

E.M.S.

(164b) Crystal violet, basic fuchsin and malachite green were administered in gelatin capsules at dose rates of 0.2 gm. to 0.37 gm. per kg. body-weight to sheep infested with *Dicrocoelium dendriticum*. Only crystal violet showed any appreciable anthelmintic activity at the higher dose rates, and these were fatally toxic to the sheep.

E.M.S.

165—Bulletin. Arizona Agricultural Experiment Station.

a. BROWN, J. G., 1948.—“Root knot in Arizona.” No. 212, 40 pp.

(165a) This is a popular account of root-knot disease due to *Heterodera marioni*, and the dangers of its spread in Arizona where it is said not to be native. There are numerous illustrations of galled roots, lists of plants having varying degrees of susceptibility, and an account of some control measures.

M.T.F.

166—Bulletin. Cornell University Agricultural Experiment Station.

a. NEWHALL, A. G. & LEAR, B., 1948.—“Soil fumigation for nematode and disease control.” No. 850, 32 pp.

(166a) This bulletin deals very thoroughly with the practical aspects of soil fumigation for the control of nematodes. A section on fumigants describes the properties and uses of chloropicrin, D-D mixtures, methyl bromide and fumigants containing ethylene dibromide. Methods are given for the fumigation of potting soil, greenhouse beds and benches, and fields with advice on equipment and the calibration of field-scale injectors. The results of field tests of D-D mixture and a 10% ethylene dibromide fumigant on land infested with the root-knot nematode are given. Finally, the economic aspects of fumigation are discussed, some useful tables are provided for the calculation of the quantities required of the different fumigants, and the precautions necessary in their use are outlined.

M.T.F.

167—Bulletin. Imperial Bureau of Pastures and Field Crops, Aberystwyth.

a. ROSEVEARE, G. M., 1948.—“The grasslands of Latin America.” No. 36, 291 pp.

(167a) On p. 40 *Anguillulina dipsaci* is described as a serious pest of lucerne in the moist region of cultivation, in the strip of land between Santa Fé and La Plata, and in irrigation lands of the interior (Burkart, 1937 and 1943), but a distinct resistant variety has been produced through continuous selection by Ragonese & Marcó (1943). On p. 206 *A. dipsaci* in lucerne culture is mentioned as an increasing cause of heavy loss. Burkart (1935) observed *A. radicicola* on *Poa annua* in Buenos Aires. There is no mention of helminth parasites of livestock in the section dealing with veterinary problems.

R.T.L.

168—Bulletin de l’Institut Océanographique. Monaco.

a. DOLLFUS, R. P., 1948.—“L’énigme de *Distoma furcatum* Bremser enfin expliquée. Contribution à la connaissance des trématodes des poissons du genre *Mullus* en Méditerranée.” No. 928, 23 pp.

(168a) *Distoma furcatum* Bremser was redescribed by Stossich as possessing a spiny armature round the genital aperture, and was referred by him to the genus *Podocotyle*. The species was also redescribed by Lühe and later by Odhner as possessing an accessory ventral sucker and an unarmed genital orifice, and was placed by Odhner in his genus *Opecoeloides*. Dollfus has now found representatives of both types in material collected from *Mullus barbatus* at Castiglione, Algeria. *Opecoeloides furcatus* is briefly redescribed. “*Podocotyle furcatum*” is made the type of a new genus *Poracanthium* and is fully described. Figures show clearly the differences between the two types. A single specimen of *Holorchis legendrei* from the same material differs slightly from the type specimens collected at Finistère. *Lasiotocus mulli* is fully described and figured for the first time.

E.M.S.

169—Bulletin of the Institute of Marine and Tropical Medicine of the Medical Academy in Gdańsk, Poland.

a. KOZAR, Z., 1948.—“Age-acquired resistance and the influence of diet and light on the parasite *Ascaridia columbae* in pigeons.” 1 (1), 39-44.

(169a) Considering various factors that might influence resistance of pigeons to infestation with *Ascaridia columbae*, Kozar finds that neither age nor previous infestation brings a complete resistance. Later infestations are, however, less vigorous when judged by worm size and egg production. Light has no effect on infestations but resistance can be broken down by dietary changes.

P.A.C.

170—Bulletin. Tennessee Agricultural Experiment Station.

a. TODD, A. C., 1948.—“Worm parasites of Tennessee chickens.” No. 205, 20 pp.

(170a) This bulletin provides teachers of vocational agriculture and poultry farmers in Tennessee with a brief and illustrated account of the 21 species of helminths found during a three-year survey in chickens in the State, and describes the effect of each species upon its host.

R.T.L.

171—Bulletin of the United States Army Medical Department.

a. HUNTER, III, G. W., HODGES, E. P., JAHNES, W. G., DIAMOND, L. S. & INGALLS, Jr., J. W., 1948.—“Studies on schistosomiasis. II. Summary of further studies on methods of recovering eggs of *S. japonicum* from stools.” 8 (2), 128-131.

b. RITCHIE, L. S., 1948.—“An ether sedimentation technique for routine stool examinations.” 8 (4), 326.

c. BRECK, R. W., 1948.—“A case of malaria, secondary syphilis, lymphogranuloma venereum, and hookworm disease with complications.” 8 (9), 742-744.

(171a) The following method, named AMS III, is said to be efficacious for the detection of immature and degenerate as well as mature eggs of *Schistosoma japonicum* and equally good for the eggs of *Ascaris*, whipworm, hookworm, *Hymenolepis* and *Taenia*: (i) comminute 2 ml. of faeces with 5 ml. of hydrochloric acid and sodium sulphate mixture; (ii) strain through two layers of gauze into a 15 ml. centrifugation tube; (iii) centrifuge three times for 1½ to 2 minutes at 1,700 to 2,100 r.p.m. replacing the supernatant fluid each time by fresh mixture; (iv) add 5 ml. of the mixture plus three drops of Triton NE plus 5 ml. refrigerated ether; (v) shake for 30 seconds and centrifuge for one minute; (vi) remove tube, break ring at interface with applicator and decant; (vii) swab down to the sediment with cotton swab, add physiological saline to the 0.4 ml. mark; (viii) mix sediment, pipette on to a slide and cover with coverglass for microscopical examination. This technique, which takes less than 15 minutes, yields a greater number of eggs washed free from much debris.

R.T.L.

(171b) Telemann's ether sedimentation technique has been modified by Ritchie for use in the diagnosis of schistosomiasis.

R.T.L.

172—Caldasia. Bogotá.

a. URIBE-PIEDRAHITA, C., 1948.—“Contribuciones al estudio de la parasitología en Colombia, II.” 5 (21), 211-219.

(172a) A partial description is given of an unnamed strigeid found in the jejunum of *Phimosus infuscatus berlepschi*, and its relations with its host are compared with those of *Alaria arisaemoides* with its host *Vulpes fulva*. *Pneumonoces medioplexus* is recorded in Colombia as a parasite of *Rana palmipes*.

E.M.S.

173—Canadian Journal of Comparative Medicine.

a. DALLING, T., 1948.—“Research on animal health problems in Great Britain.” 12 (8), 211-213.

174—Canadian Journal of Public Health.

a. GAYTON, J. L., BELLIS, M. & McCLENAHAN, W. H., 1948.—“A survey of pinworm infection in an elementary school.” 39 (5), 200-202.

(174a) In the elementary school of an unnamed Canadian village 37.6% of 157 young children were found to be infected with *Enterobius vermicularis*. The positive cases came from “every type of family . . . from extremes of economic status, from rural homes to crowded auto-camps, and from the very well cared for to the most neglected”.

R.T.L.

175—Canadian Journal of Research. Section D, Zoological Sciences.

a. BASIR, M. A., 1948.—“On a *Physaloptera* larva from an insect.” 26 (4), 197-200.

b. BASIR, M. A., 1948.—“*Cameronia biovata* gen. et sp. nov. (Thelastomatidae), a new nematode parasite of the mole cricket, *Gryllotalpa africana* Beauv.” 26 (4), 201-203.

- c. CHOQUETTE, L. P. E., 1948.—“Parasites of freshwater fish. IV. Internal helminths parasitic in speckled trout (*Salvelinus fontinalis* (Mitchill)) in rivers and lakes of the Laurentide Park, Quebec, Canada.” *26* (4), 204-211.
- d. FALLIS, A. M., 1948.—“*Ascaris lumbricoides* infection in guinea pigs with special reference to eosinophilia and resistance.” *26* (5), 307-327.

(175a) Basir illustrates a nematode larva 2.1 mm. in length, two specimens of which were found free and unencysted in the body cavity of an earwig, *Labidura repara*, at Aligarh (North India). This is the first occasion on which a *Physaloptera* larva has been recognized in a naturally infected intermediate host, although Alicata (1937) and Hobmaier (1941) have obtained developmental stages experimentally in cockroaches.

R.T.L.

(175b) Female Thelastomatinae named *Cameronia biovata* n.g., n.sp., are described and illustrated from *Gryllotalpa africana* from Aligarh (North India). *Cameronia* is differentiated from *Binema*. The eggs lack polar filaments and are fused into pairs which are enclosed in a layer of cuticular secretion.

R.T.L.

(175c) The distribution and incidence of helminths of the speckled trout in a number of lakes and streams of the Laurentide Park, Quebec, are tabulated, and brief notes on each are given in the text.

R.T.L.

(175d) Guinea-pigs infected with several thousand *Ascaris* eggs showed loss of weight, congestion of the lungs, and eosinophilia but no rise in temperature. Eosinophilia increased with repeated infections. The resistance developed as a result of infection was measured by the amount of congestion of the lungs and the size and number of larvae present. A slight passive resistance was found to be produced by the injection of large quantities of serum or liver extract from resistant guinea-pigs. Body defences acted to some extent before the parasites reached the liver and to a greater extent before reaching the lungs.

J.W.G.L.

176—Časopis Československých Veterinářů.

- a. FRIED, K. J., 1948.—“Teníaza psov a jej liečenia arekolínom.” *3* (4), 103-105.

(176a) In the Veterinary School in Brno in 1946 Fried found 241 (5.1%) out of 4,785 dogs examined to be infested with tapeworms. In 11 months of 1947, 172 (5%) out of 3,644 were infested. According to him arecolin hydrobromide is the best drug for treatment and the doses for 15 different breeds of dogs are given.

C.R.

177—Chinese Review of Tropical Medicine.

- a. HUNG, S.-L. & LI, F.-P., 1948.—“On the egg discrimination, larval culture and infection course of *Trichostrongylus orientalis*.” *1* (1), 1-5.
- b. HUNG, S.-L. & YANG, F.-H., 1948.—“A new method of preparing paraffin model of helminthes for demonstration.” *1* (1), 7-8.
- c. TAO, C. S., 1948.—“Notes on the study of life-cycle of *Metorchis orientalis* and *M. taiwanensis*.” *1* (1), 9-14.
- d. LI, F. C., 1948.—“Zur Frage der Schistosomiasis japonica und ihrer Bekämpfung in China.” *1* (1), 15-28.

(177a) A preliminary survey of the districts Tong-Nan, Ho-Chuan, and Tung-Lian, lying in the lower valley of the Fu-Kiang, showed that trichostrongylosis was present in from 28.12% to 49.16% of the local population and was often associated with hookworm infection. A table of measurements gives a comparison of the eggs of *Trichostrongylus orientalis* and *Ancylostoma duodenale* which are readily distinguished by size, colour, shape, and degree of development. Rabbits were infected experimentally by the mouth and through the skin but the infection rate by the latter route was inconsiderable.

R.T.L.

(177c) In ducks obtained from the markets in Shanghai, *Metorchis orientalis* and *M. taiwanensis* occur chiefly in the gall-bladder. Infection is acquired by eating the fresh-water fishes, *Pseudorasbora* sp. and *Pseudogobio* sp. Chickens and quail were readily infected experimentally. Only slight infections were obtained in two puppies and a mouse when fed on cysts of *M. orientalis*. Attempts to infect local species of *Bithynia* were unsuccessful.

R.T.L.

(177d) Li discusses the distribution of schistosomiasis japonica in the lower Yangtse valley, as surveyed by Chen & Li (1930). The area of 58,558 square km. then studied has a population of nearly 13,000,000 people. In heavily infested districts the infection rate is 55.6%, in "lightly" infested districts 39.6%. The highest incidence is among farmers and river-boat dwellers. Males are more frequently infected than females. The area falls into three natural divisions of which two, the Tiantang and the Tsin-huai districts, are largely free of Oncomelania. The remaining large division, comprising the Taihu district and its surroundings, is to be the subject of a vigorous control programme of which the necessary steps are outlined. The necessity of controlling the disease in domestic animals which act as its chief reservoirs, is emphasized.

E.M.S.

178—Chronicle of the World Health Organization.

a. ANON., 1948.—"Parasitic diseases." 2 (8/9), 180, 182.

(178a) The first World Health Assembly has given third-rank priority to the study of the helminth diseases schistosomiasis, ancylostomiasis, and filariasis, and expressed the wish that schistosomiasis should be considered first of all. It will collate and distribute all available information on filariasis and promote a uniform classification and terminology of this group of diseases.

R.T.L.

179—Clinical Proceedings. Journal of the Cape Town Post-Graduate Medical Association.

a. CAWSTON, F. G., 1948.—"The aim to eradicate all schistosome worms." 7 (7), 249-250.

(179a) Cawston states that treatment of schistosomiasis must be aimed at producing immunity and believes, from his experience, that once a patient has been successfully cured he remains free from infection. Those engaged in clinical studies overlook the importance of post-mortem examination to determine if a cure of the infection has actually occurred. R.T.L.

180—Comptes Rendus Hebdomadaires des Séances de l'Académie d'Agriculture de France.

a. GUILHON, J. & RIOUX, J., 1948.—"Essais de traitement de la dicrocoeliose ovine par l'hexachloréthane." 34 (5), 237-240.

(180a) Guilhon & Rioux have failed to confirm Kaplan & Sakellariou in their conclusion that hexachlorethane is effective against *Dicrocoelium dendriticum*. It has no action either as a powder, in solution in chloroform or carbon tetrachloride, suspended in olive oil, or in aqueous suspensions with bentonite. It is dangerous when mixed with chloroform or carbon tetrachloride.

R.T.L.

181—Comptes Rendus des Séances de la Société de Biologie. Paris.

a. CAVIER, R., 1948.—"Sur la toxicité du liquide coelomique de l'Ascaris du porc." 142 (13/14), 898-899.
b. STEFANOPOULO, G. J. & SCHNEIDER, J., 1948.—"Essais de traitement de la filariose à *F. loa* par la 1-diéthyl-carbamyl 4-méthylpiperazine." 142 (13/14), 930-931.

(181a) Employing the technique of Guggenheim & Loeffler, the author was able to demonstrate the presence of histamine in coelomic fluid obtained from pig Ascaris, in a concentration of 200-250 µgm. per 100 c.c. of fluid. The toxic effects produced by injecting this fluid into various animals are believed to be attributable in part to histamine.

J.J.C.B.

(181b) Stefanopoulo & Schneider report on the results of treatment with 1-diethyl-carbamyl 4-methylpiperazine [= Hetrazan] of 20 loiasis patients, aged from 24-60 years, whose duration of infection was variable and who showed various signs of the disease. The drug was given orally, in doses of 3-6 mg. per kg. body-weight, daily for 7-10 days. In some instances there were reactions to the treatment which, however, ceased after the first 48 hours. Symptoms of the disease decreased after 48 hours and finally disappeared; microfilariae, when present, also disappeared. The adult worms tended to appear under the skin or conjunctiva and sometimes were either eliminated spontaneously or died and formed a small subcutaneous nodule. There was usually a recurrence of symptoms, but not of microfilariae, after about 3 weeks though in some cases not for 2-4 months. Recurring symptoms were of reduced intensity.

J.J.C.B.

182—Current Science. Bangalore.

- a. BHALERAO, G. D., 1948.—“Blood-fluke problem in India.” [Summary of presidential address delivered before Section of Medical and Veterinary Sciences, Indian Science Congress, Patna, 1948.] 17 (2), 36-37.
- b. PETER, C. T. & MUDALIAR, S. V., 1948.—“On a new cercaria, determined to be the larva of *Gastropdiscus secundus* Looss, 1907.” [Correspondence.] 17 (10), 303-304.

(182b) A cercaria belonging to Sewell's subgroup “Diplocotylea”, but differing from *Cercariae Indicae* XXI and *Cercaria kylasami* so far reported from India, was found developing in *Planorbis exustus*. The rediae and cercariae are described. The cell groups of the genital system are arranged as in the adults of *Gastropdiscus*. Cercariae raised experimentally by infecting *Planorbis exustus* with miracidia from the eggs of *G. secundus* correspond exactly with those discharged by naturally infected specimens.

R.T.L.

183—Deutsche Tierärztliche Wochenschrift.

- a. WOLFANGER, L., 1948.—“Magenwürmer bei Ziegen und Phenothiazin.” 55 (21/22), 169-170.
- b. JOHN, E., 1948.—“Bandwurmbefall bei einem Pferde.” 55 (21/22), 170-171.
- c. SCHULTE, F., 1948.—“Bluterguss ins Cavum mediastini serosum (Süssdorfschen Raum) beim Hunde infolge Spirocerkose der Speiseröhre.” 55 (29/30), 229.
- d. ANON., 1948.—“Trichinose nach Genuss von Wildschweinfleisch.” 55 (31/32), 251.

(183a) Wolfanger treated stomach worm disease in goats with phenothiazine and had marked success. He gave 25 gm. in the evening followed by another 25 gm. on an empty stomach the next morning. Even the most seriously infected goats tolerated the dose well and improved rapidly.

A.E.F.

(183b) John describes the clinical symptoms and post-mortem findings of a case of *Anoplocephala perfoliata* infection in a 5-years-old Hanover mare.

A.E.F.

(183c) Schulte describes a case of *Spirocerca sanguinolenta* infection in the oesophagus of a 4-years-old male Boxer dog. The muscles and adventitia of the oesophagus were affected in addition to the submucosa. The circulatory system was involved and this, combined with advanced changes in the liver and inflammation of the lungs, led to the death of the dog.

A.E.F.

(183d) Thirty-six persons became ill with trichinelliasis after consuming the flesh of a wild pig at Rammelburg (Lower Franconia). Four cases proved fatal. The animal had not been subjected to trichina inspection.

A.E.F.

184—East African Medical Journal.

- a. GELFAND, M., 1948.—“Cysticercosis of the brain in the African of Rhodesia.” 25 (3), 110-112.
- b. RAPER, A. B., 1948.—“Cerebral schistosomiasis.” [Correspondence.] 25 (6), 262-263.
- c. SNELL, D. G. & MUKASA, S. B. K., 1948.—“A case of hydatid disease of the liver.” 25 (7), 288-289.
- d. KIRKALDY-WILLIS, W. H., 1948.—“Cystoscopy in the diagnosis and treatment of *Bilharzia haematobium* infection.” 25 (9), 333-361.
- e. WALKER, A. J., 1948.—“Aspects and prospects of schistosomiasis control on the Kenya coast.” 25 (9), 362-366.
- f. GELFAND, M., 1948.—“The diagnosis of schistosomiasis.” 25 (9), 367-371.
- g. ANON., 1948.—“The prevention of *Bilharzia haematobium* infection.” 25 (9), 372-373.

(184a) Seven cases of cerebral and three cases of cardiac infection with *Cysticercus cellulosae* occurred in a series of 2,148 autopsies carried out by Gelfand at the Salisbury Native Hospital from 1940-45 inclusive. The cysts in the cerebral cases were always on the surface of the brain, indenting the grey matter but never in the brain substance, and were distributed over the cerebral hemispheres, the frontal and parietal lobes, and occasionally in the occipital region. In two cases the cysts occurred on the cerebellar surface.

R.T.L.

(184b) Raper records the discovery in Kenya in 1942 of eggs of *Schistosoma mansoni* in the brain of an East African soldier after the brain tissue had been digested, although no worms or adults were found by microscopical section. There was an area of diffuse capillary haemorrhage and all the capillaries and venules were blocked by thrombus. Digestion of the

liver revealed eggs of *S. mansoni* and *S. haematobium*. Laminectomy performed on a case of spastic paralysis of both legs in a native soldier revealed a plaque of fibrous tissue surrounding an adult unidentified fluke lying extradurally and compressing the spinal cord. R.T.L.

(184c) Hydatid is very rare in man and animals in Uganda. A case is recorded in an African female of the Ganda tribe. In 1946 Dr. Baird saw a case at Mulago Hospital, S. G. Laws observed a case in a pig in Entebbe, and S. G. Wilson has occasionally seen hydatid, especially in sheep, at the slaughterhouses in Entebbe. R.T.L.

(184d) The cystoscopic appearances of the bladder in urinary schistosome infection, as observed in 38 cases in Kenya, are described and illustrated by coloured plates. Wherever possible cystoscopy should be performed within two weeks after the conclusion of treatment and repeated in 2-4 months. The author is of opinion that the results of treatment cannot be assessed without routine examinations of the urine and cystoscopy after 3 and 6 months. The presence of stone in the bladder is nearly always due to chronic infection following bilharziasis, or to calcification of polypoid growths or plaques of debris. Propaganda through the mission schools, hospitals, and dispensaries, and the provision of adequate places for washing and bathing throughout the coastal area are recommended. R.T.L.

(184e) In the coastal areas of Kenya, *Schistosoma haematobium* occurs in 60-70% of schoolboys. As the population is widely dispersed and backward, roads are few and distances vast, control will continue to depend on efficient and co-ordinated administration of all methods of attack applied simultaneously. An urgent and new problem is to check the spread of the disease inland where mining and other development activities are being initiated. R.T.L.

(184f) Although for the diagnosis of bilharziasis the skin test, formol-gel test, and eosinophilia are valuable pointers, they cannot replace the demonstration of the eggs. Rectal snippings may be positive where stool examinations are negative. Although cystoscopy is of value an infected bladder may appear normal. The bladder shows a varying degree of calcification in about 15% of African cases. Intravenous urography is a further aid but is of limited value and is an expensive procedure. R.T.L.

(184g) An "Administrative Officer" discusses the relations between the Administration and the Medical Officer of Health in campaigns designed to control bilharziasis in East Africa. The importance of a policy of limited objectives is stressed. Personal discussion with small groups in the villages is the most effective type of propaganda, especially when led by a trained African. Quiet and persistent pressure by Chiefs and Headmen can achieve much. R.T.L.

185—Experientia. Basel.

- a. PASTEELS, J., 1948.—"Etude cytochimique des acides nucléiques dans le cycle germinal de *l'Ascaris megalocephala*," 4 (4), 150-152. [English summary p. 152.]
- b. KENT, N. & MACHEBOEUF, M., 1948.—"Existence de sels biliaires et de cérébrosides associés à des protéines chez *Moniezia expansa*. (Recherches biochimiques sur les cestodes)," 4 (5), 193-194. [English summary p. 194.]

(185a) Pasteels gives an account of his pioneer cytochemical studies on the oogenesis, spermatogenesis, fertilization, early cleavage, and later development of *Parascaris equorum*. Marked differences in the occurrence and distribution of ribonucleic acid and thymonucleic acid have been found to exist between the male and female gametogonia, gametocytes, and gametes, and also between the somatic cells and primordial germ cells of the young larva. These differences, and the cytochemical changes that take place during mitosis, are described in detail. H.C.

(185b) Tapeworms of the species *Moniezia expansa* were defatted at -15° C. and the dried product extracted with distilled water. On dialysis of the solution against water at 0° C. a peculiar protein fraction, insoluble in water, was precipitated. It contained proteins (only 8.6% nitrogen), glycogen, cerebrosides, and bile acids. After hydrolysis the amino acids were microchromatographically identified. Glycogen was identified and the amount of sugar and of glucosazone was estimated. The cerebrosides were hydrolysed and the fatty acid esters

isolated and estimated, as was the sphingosine yield. The sugar in these cerebrosides was microchromatographically identified as galactose. It is concluded that the substance associated with the proteins is without doubt a cerebroside. The authors had previously established, for the first time, the presence of bile acids in tapeworms [for abstract see Helm. Abs., 16, No. 91b]. These acids were estimated by various colorimetric and spectrographic methods. H.C.

186—Federation Proceedings. Federation of American Societies for Experimental Biology.

- †a. ANDERSON, H. H., JOHNSTONE, H. G. & PEÑA CHAVARRÍA, A., 1948.—“Parasiticidal activity of thioarsenites in man.” 7 (1), Part 1, p. 203.
- †b. MAREN, T. H. & OTTO, G. F., 1948.—“The distribution, excretion, and blood levels of antimony following administration of antimonials to various mammalian species.” 7 (1), Part 1, p. 243.
- †c. SCHÜBERT, M. & GOLDBERG, E., 1948.—“Comparison of therapeutic values of several antimonials in experimental schistosomiasis mansoni in mice.” 7 (1), Part 1, p. 254.
- †d. WRIGHT, H. N., CRANSTON, E. M., CHADBOURN, W. A., CUCKLER, A. C., DEGUISTI, D. & BIETER, R. N., 1948.—“Rosaniline base (CI 677) as a prophylactic in *Schistosoma mansoni* infections in mice.” 7 (1), Part 1, p. 267.
- e. LEVINE, M. D., GARZOLI, R. F., KUNTZ, R. E. & KILLOUGH, J. H., 1948.—“On the demonstration of hyaluronidase in cercariae of *Schistosoma mansoni*.” [Abstract of paper presented at the 33rd Annual Meeting of the American Society for Experimental Pathology, Atlantic City, N.J., March 15-19, 1948.] 7 (1), Part 1, p. 274.

(186a) Dithiocarboxymethyl and dithiocarboxyphenyl derivatives of *p*-carbamidophenyl arsenous oxide in doses of 200 mg. given orally three times daily for 10 days cleared one out of 12 persons of *Strongyloides stercoralis*. In one case with *Fasciola hepatica* the result was uncertain. R.T.L.

(186b) Pentavalent antimony compounds injected intravenously or intraperitoneally result in antimony concentration in the spleen and, to a lesser extent, in the liver. Plasma concentrations at the peak are ten times those in the red cells whereas with trivalent compounds the antimony is principally deposited in the thyroid and liver, and five times as much in the red cells as in the plasma. With both types of compounds the metal is chiefly excreted in the urine in guinea-pigs, rats, dogs, and man but in hamsters, mice, and white rats with trivalent compounds elimination is mainly in the faeces. R.T.L.

(186c) Fouadin was the best of the antimonials currently used when tested in mice experimentally infected with *Schistosoma mansoni*. Two oil-soluble antimonials [not specified] were more effective. R.T.L.

(186d) When rosaniline base (CI 677) was given in the diet at a concentration of 0.33% one week before experimental infection of mice with *Schistosoma mansoni* cercariae and continued for 28 days, no worms or eggs were found post mortem in 90% whereas of the controls only 13% were negative. When this treatment was commenced two weeks after infection 80% were negative. R.T.L.

(186e) [A fuller account of this paper appears in *J. Parasit.*, 34 (2), 158-161. For abstract see Helm. Abs., 17, No. 97m.]

187—Grower, London.

- a. MARTIN, H., 1948.—“Selenium treatment is dangerous.” 29 (19), 701.

(187a) Martin gives evidence of the danger of applying sodium selenate to soil for the control of the chrysanthemum eelworm. Poultry, pigs, and cattle are harmed by feeding on plants grown in selenium-containing soil. The selenium up-take differs in different plants and also depends on the sulphur content of the soil. By heavily manuring with sulphates the amount of selenium taken up can be reduced, and in this way it may be possible to render selenium-treated soils harmless. Until such methods are thoroughly well understood, selenium is too dangerous for general use as it persists indefinitely in the soil. M.T.F.

† Abstracts of papers presented at the 38th Annual Meeting of the American Society for Pharmacology and Experimental Therapeutics, Inc., Atlantic City, N.J., March 15-19, 1948.

188—Indian Medical Gazette.

- a. BRUMPT, L. C. & GUJAR, B. J., 1948.—“The treatment of polycythaemia by artificial infection with *Ancylostoma duodenale*.” 83 (4), 166-169.
- b. DE, R. R., 1948.—“Some misleading cases of helminthic infestation.” 83 (5), 231.
- c. MOHINDRA, B. P., 1948.—“Transmission of *Wuchereria bancrofti*.” [Questions & Answers.] 83 (5), 254.
- d. NAIR, T. D., 1948.—“What should the general practitioner know about filariasis.” 83 (9), 422-424.

(188a) Uniformly good results were obtained in the treatment of polycythaemia by artificially infecting the patients with *Ancylostoma duodenale*. The physician can adjust, control, and terminate the infection as required. The fall in the red blood corpuscles is slow and lasting. The method is harmless to the patient but is contraindicated in cases of severe polycythaemia which would require a large number of parasites, and in the polycythaemia of tuberculosis of the spleen.

R.T.L.

(188b) A case of hiccup was cured by the vomiting of a large roundworm during gastric lavage. In another case an attack of acute pain in the right hypochondriac region, with vomiting recurring at regular intervals, was relieved by the passage of a large roundworm in liquid faeces following a dose of castor oil.

R.T.L.

(188c) Mohindra draws attention to the statement by Romanis & Mitchiner in “Science and practice of surgery” (1948), and Handfield Jones in “Essentials of modern surgery” (1948), that infection by *Wuchereria bancrofti* is acquired by drinking water in which the bodies of mosquitoes have fallen. [This was an early and now discarded hypothesis of Manson.]

R.T.L.

189—Journal of the American Veterinary Medical Association.

- a. AMERICAN VETERINARY MEDICAL ASSOCIATION, 1948.—“Parasitology. Report of the Committee on Parasitology.” 113 (858), 235-239.

(189a) This report is from a Standing Committee established in 1947 to inquire into the main parasitic diseases of livestock in the North American continent, the factors responsible for the onset of clinical parasitic disease, the role of anthelmintic chemotherapy and the drugs which are approved or tentatively approved for practical use by veterinarians at the present time. The conclusions are briefly summarized and there is a table of anthelmintics with the Committee's judgment thereon.

R.T.L.

190—Journal of Comparative Pathology and Therapeutics.

- a. RUSSELL, A. F., 1948.—“The development of helminthiasis in thoroughbred foals.” 58 (2), 107-127.

(190a) Russell has studied the development of worm infestations in 26 thoroughbred foals in seven different studs by making weekly microscopical examinations of faeces. Eggs of strongylids appeared soon after birth but their presence is attributed to coprophagia. Genuine infections first showed in the faeces after 12-55 weeks for different species. *Strongyloides westeri*, which developed early even indoors with mares apparently free from infection, rose to a peak at 6-10 weeks and disappeared at 15-23 weeks; foals rapidly acquired immunity and were resistant to superinfection. *Parascaris equorum* eggs were first passed when the foals were 16-18 weeks old and diminished at 19-28 weeks. In some cases all the worms were apparently expelled within six months. Stud management and pasture hygiene influenced the redworm infections but had no influence on Ascaris infestation. The use of anthelmintics at weaning time is deprecated as the pathogenic species have not reached the intestine by then.

R.T.L.

191—Journal of the Department of Agriculture. South Australia.

- a. ROBIN, A. H., 1948.—“Hydatid disease and its prevention.” 51 (8), 379-381.
- b. McAULIFFE, W. S., 1948.—“Sanitation in the piggery.” 51 (8), 382-384.

192—Journal of Organic Chemistry.

- a. STEWART, H. W., TURNER, R. J., DENTON, J. J., KUSHNER, S., BRANCOME, L. M., McEWEN, W. L., HEWITT, R. I. & SUBBAROW, Y., 1948.—“Experimental chemotherapy of filariasis. IV. The preparation of derivatives of piperazine.” *13* (1), 134–143.
- b. KUSHNER, S., BRANCOME, L. M., HEWITT, R. I., McEWEN, W. L., SUBBAROW, Y., STEWART, H. W., TURNER, R. J., & DENTON, J. J., 1948.—“Experimental chemotherapy of filariasis. V. The preparation of derivatives of piperazine.” *13* (1), 144–153.

(192a) The authors describe the preparation of several new derivatives of piperazine; the most active filaricide was 1-carbethoxy-4-methylpiperazine. J.J.C.B.

(192b) The authors describe the preparation and characterization of a number of mono- and disubstituted piperazines; 1-diethylcarbamyl-4-methylpiperazine and 1-dimethylcarbamyl-4-methylpiperazine have pronounced filaricidal activity. J.J.C.B.

193—Journal of Parasitology.

- a. TINER, J. D., 1948.—“*Rictularia dipodomis* n.sp. (Nematoda : Thelaziidae) from the kangaroo rat *Dipodomys* sp.” *34* (4), 332–335.
- b. NAGATY, H. F., 1948.—“Trematodes of fishes from the Red Sea. Part 4—On some new and known forms with a single testis.” *34* (5), 355–363.
- c. MAO, C. P. & LI, L., 1948.—“Snail hosts of *Schistosoma japonicum* in the Soochow-Wusih area, Kiangsu, China.” *34* (5), 380–385.
- d. GURSCH, O. F., 1948.—“Effects of digestion and refrigeration on the ability of *Trichinella spiralis* to infect rats.” *34* (5), 394–395.
- e. GOODCHILD, C. G., 1948.—“Additional observations on the bionomics and life history of *Gorgodera amplicava* Looss, 1899 (Trematoda : Gorgoderidae).” *34* (5), 407–427.
- f. CORT, W. W., AMEEL, D. J. & VAN DER WOUDE, A., 1948.—“Studies on germinal development in rediae of the trematode order Fasciolatoidea Szidat, 1936.” *34* (5), 428–451.
- g. LINCICOME, D. R., 1948.—“A note on the nematode genus *Pseudophysaloptera*.” *34* (5), 452.

(193a) *Rictularia dipodomis* n.sp. from *Dipodomys* sp. in Arizona is based on fragments of females only. The oral opening is almost exactly anterior whereas usually in this genus it is inclined dorsally. The last pair of spines on the female are located 2·15 mm. from the posterior end. R.T.L.

(193b) Keys are given for the five known species of *Genolopa* and for ten species of *Proctotrema*, of which *P. malasi* n.sp. is now described from *Anampses* sp. *Spiritestis arabii* n.g., n.sp. from *Mugil* sp., *Hairana sohali* n.g., n.sp., and *H. magnus* n.sp. from *Acanthurus sohal* are also described. A key is given for the differentiation of these two new genera from allied forms. R.T.L.

(193c) From an examination of the radular formula and shell characters of 148 oncomelaniid snail hosts of *Schistosoma japonicum* collected from seven villages situated within an area 40 miles across, in the Soochow-Wusih region, Mao & Li throw doubts on the validity of Bartsch's opinion that in this region there are 16 species belonging to three genera. Both the shell characters and denticle counts proved quite unreliable for separating species or genera of these snails. R.T.L.

(193d) Artificial digestion for 4–8 hours of rat muscle infected with *Trichinella spiralis* and subsequent storage in a refrigerator for 24 hours did not affect the infectivity of the larvae, but digestion for 12 hours lowered the percentage of worms recovered after experimental infection. Refrigeration for 72 hours even after a brief period of digestion was definitely injurious. R.T.L.

(193e) The miracidium, mother sporocyst, daughter sporocyst, cercaria and metacercaria of *Gorgodera amplicava* are described and illustrated. The first intermediary is the small bivalve, *Musculium partumeium*. The cercariae are ingested with food or in respiratory currents by tadpoles of several anuran species. A unique flame-cell metamorphosis was observed in mother and daughter sporocysts and in the adult flukes. *G. minima* is suppressed as a synonym of *G. amplicava*. R.T.L.

(193f) In the Fasciolatoidea the mother sporocyst produces only a very few individuals but in the rediae, in certain species at least, there is a germinal mass which is a persistent centre of multiplication of germinal cells. R.T.L.

(193g) Linccome points out that Yokogawa's original description of the caudal papillae of *Physaloptera formosana* justifies its transference to *Pseudophysaloptera*, and gives a table setting out the hosts and localities of the three species of this genus. R.T.L.

194—Journal of the Royal Egyptian Medical Association.

- a. IBRAHIM, M., SOROUR, A. & EL-SHERIF, A., 1948.—“The role of urinary bilharziasis in the production of hypertension and cardiac decompensation.” *31* (5), 444-452.
- b. TALAAT, S. M., 1948.—“Renal concentration test in urinary schistosomiasis and the effect of tartar-emetic on it.” *31* (6), 481-486.

195—Journal of the Society of Chemical Industry.

- a. LUBATTI, O. F. & SMITH, B., 1948.—“Determination of fumigants. XIX. Sorption of methyl bromide by onion seed.” *67* (8), 297-309.
- b. LUBATTI, O. F., RUSSELL, J. & PORTER, J. S., 1948.—“Fumigation of agricultural products. I. A fumigation chamber for onion seeds.” *67* (8), 309-313.

(195a) Arising out of Goodey's successful control of the stem eelworm, *Anguillulina dipsaci*, on onion seed by fumigation with methyl bromide [see Helm. Abs., 14, No. 119b], Lubatti & Smith have carried out extensive investigations into the sorption of four fumigants, including methyl bromide, by various seeds and stored food products. A detailed study of the effect of moisture content on the sorption of methyl bromide by onion seed, whole and ground, and by wheat and wheatmeal has been made. The effect of the sorption of methyl bromide on the germination of onion seed of various moisture contents has been studied. T.G.

(195b) Lubatti, Russell & Porter give a technical description of a fumigation chamber and ampoule breaker designed for the methyl bromide treatment of onion seed in quantities up to 1 cwt. An account is also given of experiments carried out to determine the requisite dosages. Precautions to be observed in the use of methyl bromide are indicated. T.G.

196—Journal of Tropical Medicine and Hygiene.

- a. CAWSTON, F. G., 1948.—“Criteria of the cure of ‘bilharziasis’.” *51* (9), 184.

(196a) No case of schistosome infection is cured where eggs continue to appear in the excreta, however much they show degeneration. The first effect of anthelmintic treatment is a slightly increased transparency of the egg-shell. The “blackening” of the shell is thought to be due to blood gaining entry from surrounding haemorrhages. Death of the adult worm is indicated by a temporary rise in the eosinophile count. R.T.L.

197—Lancet.

- a. WILLIAMS, A. A., 1948.—“Cysticercosis cerebri mistaken for cerebral syphilis. Report of a case.” *Year 1948*, 2 (6517), 144.

198—Médecine Tropicale. Marseilles.

- a. JOYEUX, C., 1948.—“Les phénomènes d'immunologie dans les helminthiases considérés chez les cestodes de l'homme.” *8* (4), 463-470.

(198a) The various types of immunity occurring in helminth infestations are of the same type as occur in bacterial diseases, but show less precision and clarity. Natural immunity [specificity] has been recognized for a long time. Acquired immunity may be of two types: premunition due to the presence of a parasite, and true immunity which persists after the removal of a parasite. Premunition occurs with certain large cestodes, notably the taenias of man, but there is evidence to suggest that a true immunity develops after an infection with *Hymenolepis nana*. Differences of behaviour between closely related cestode species are perhaps attributable to host factors, but do not accord well with the classic immunological precepts of bacteriology.

P.A.C.

99—Medical Officer.

a. CAWSTON, F. G., 1948.—“Water supplies in South African townships.” *79* (3), 27.
 (199a) Cawston comments on the neglect of rain-water and bore-holes as supplements to town water supplies in South Africa. His examination of *Physopsis* for schistosome cercariae proved negative during the winter months. R.T.L.

00—Medicina Colonial. Madrid.

a. SANCHÍS BAYARRI, V., PARÍS PELLICER, C. & GARCÍA MARTÍNEZ, A., 1948.—“Un caso de parasitismo por el *Strongyloides estercoralis*.” *11* (6), 427-440.
 b. REYES PUGNAIRE, M. DE, 1948.—“Tratamiento de la elefantiasis de los miembros inferiores.” *11* (6), 441-466.

01—Medicina. Revista Mexicana.

a. MAZZOTTI, L. & HEWITT, R., 1948.—“Tratamiento de la oncocercosis por el cloruro de 1-diethylcarbamil-4-metilpiperazina (Hetzaran).” *28* (548), 39-42.
 b. RUIZ REYES, F., 1948.—“Datos para el diagnóstico de la oncocercosis en su fase inicial.” *28* (549), 67-69.
 c. RUIZ REYES, F., 1948.—“Parasitosis intestinales. Estudio estadístico.” *28* (553), 137-141.
 d. VARGAS, L., 1948.—“Los simúlidos en la transmisión de la oncocerciasis Americana.” *28* (555), 177-190.
 e. STOLL, N. R., 1948.—“El problema de la investigación de la uncinaria.” [Paper presented at II Congreso Mexicano de Medicina.] *28* (556), 197-206.
 f. FAUST, E. C., 1948.—“Estado actual de las enfermedades tropicales y parasitarias en los Estados Unidos y el Canadá.” [Summary of paper presented at II Congreso Mexicano de Medicina.] *28* (556), 210-211.
 g. MAZZOTTI, L., 1948.—“Observaciones sobre la oncocercosis en México.” [Paper presented at 4º Congreso Internacional de Medicina Tropical.] *28* (557), 217-224.
 h. MAZZOTTI, L., 1948.—“Resultados negativos de la administración del ‘hetrazán’ en dos pacientes infectados con *Mansonella ozzardi*.” *28* (560), 317-318.
 i. CÁSIS SACRE, G., 1948.—“Impresiones parasitológicas a través del Seguro Social Mexicano.” *28* (560), 318-324.
 j. PARRA, S. A., 1948.—“Batalla en el trópico. Cincuenta hombres en lucha contra la oncocercosis.” *28* (560), Suppl. pp. 114-120; (561), Suppl. pp. 121-126.

(201a) Hetzaran in doses of 2 mg. per kg. body-weight thrice daily was given to six patients with *Onchocerca volvulus* for 15 days, and in two cases the treatment was continued to the twenty-first day. Biopsy before treatment showed numerous embryos in skin snips. After treatment these were much fewer even after 24 hours and after several days were seen only occasionally; but nodules excised from three of the patients 14-39 days after commencement of treatment contained living adults and embryos, although in one nodule which contained normal adults large numbers of microfilariae were dead. R.T.L.

(201c) During the years 1941 to 1946 in the medical investigation centre at Huixtla, Chiapas, faeces of 11,761 persons were examined for intestinal helminths, of whom 10,527 (93.42%) were found to be infected. Hookworm is the most important parasite, affecting 11.6% of those examined and being frequently associated with severe anaemia, tuberculosis, and other grave diseases. Ascariasis (36.4%) and trichuriasis (39.2%) were the other main parasitic diseases, whilst in only 4.6% of cases were other helminths detected, including interobius, *Strongyloides*, and *Taenia* spp. Age and sex did not influence the incidence of parasitism. E.M.S.

(201d) In Chiapas, Oaxaca, and Guatemala the principal vector of onchocerciasis is *Simulium ochraceum*, although *S. callidum* and *S. mettlicicum* have been found infected. The factors affecting distribution of the vectors are discussed. D.D.T. is recommended for control. E.M.S.

(201g) Mazzotti carried out 325 biopsies on 34 onchocerciasis patients, with positive results as follows: face 52%, shoulder 65%, forearm 52%, hand 39%, costal region 44%, thigh 34%, and foot 16%. The shoulder is recommended as the site for routine biopsy tests. Numerous microfilariae were found in the lymph nodes immediately after institution of drug

treatment; 24 hours after Hetrazan treatment was begun, an extirpated inguinal lymph node contained 736 microfilariae of which only 133 showed normal motility. Fifteen patients received 2 mg. Hetrazan per kg. body-weight three times daily; those treated for 45 days showed no greater ill-effects than those treated for 21 days. Shock reactions were proportional to the number of microfilariae recoverable at biopsy before treatment, and were evidently allergic reactions to larvae killed by the drug. Adult worms were not affected and small numbers of microfilariae persisted even as long as five months after the treatment.

E.M.S.

(201h) Two patients showing numerous microfilariae of *Mansonella ozzardi* in the blood were treated three times daily for 30 days with 2 mg. Hetrazan per kg. body-weight. No significant alteration was noted in microfilarial counts.

E.M.S.

202—Memoirs. Cornell University Agricultural Experiment Station.

a. STARK, Jr., F. L., 1948.—“Investigations of chloropicrin as a soil fumigant.” No. 278, 61 pp.

(202a) Stark has made a series of fundamental studies on factors influencing the efficacy of chloropicrin as a soil fumigant; the principles involved probably apply also to other volatile fumigants. Fumigation is most effective in porous sandy soils adequately sealed. With increase in the clay fraction there is increasing adsorption of chloropicrin vapour and therefore reduced efficacy, but dry organic matter has little effect on adsorption. Adsorption is decreased by increasing temperature and moisture; other factors being equal, it is proportional to the boiling point of the fumigant. Chloropicrin is also adsorbed from aqueous solution by soil. Laboratory tests on plant seeds and various fungi show that the toxicity of chloropicrin is increased at high temperatures and high humidities. Control of root-knot nematode is not good unless root galls from the previous crop have had time to rot. The soil surface is difficult to treat and, in this regard, a water seal is effective only if it is applied immediately; applied two hours after injection it is without effect. In a factorial glasshouse experiment involving 3 soil textures, 3 moisture levels, 3 temperatures, and 3 dosage rates, the percentage germination of wheat seeds was used as an (inverse) criterion of efficacy. The best results were obtained from low moisture, sandy texture, and high temperature (85° F.) in that order of importance. In studies of this kind, moisture content should be in terms of percentage of water-holding capacity rather than weight.

B.G.P.

203—Memorias do Instituto Oswaldo Cruz.

a. TRAVASSOS, L., 1948.—“Contribuição ao conhecimento dos helmintos dos peixes d'água doce do Brasil. III. Duas novas espécies do gênero *Cucullanus* Mueller, 1877.” Anno 1947, 45 (3), 551-554.

b. FREITAS, J. F. TEIXEIRA DE, 1948.—“Novo gênero de *Haploporinae* (Trematoda, Haploporidea).” Anno 1947, 45 (3), 587-589.

c. TRAVASSOS, L., 1948.—“Relatório da excursão do Instituto Oswaldo Cruz realizada no Estado de S. Paulo em Novembro e Dezembro de 1946.” Anno 1947, 45 (3), 619-627.

(203a) Travassos describes and illustrates *Cucullanus schubarti* n.sp. from *Paulicea lutkenii* and *C. mogi* n.sp. from *Leporinus* sp. Both are differentiated from *C. pinnai*.

R.T.L.

(203b) *Paralecithobotrys brasiliensis* n.g., n.sp., is described and illustrated. It occurred in the intestine of *Lahilliela kneri* and *Leporinus* sp.

R.T.L.

204—Monatshefte für Veterinärmedizin.

a. HABERSANG, O., 1948.—“Thrombose der Nasenvenen beim Pferde auf verminöser Grundlage.” 3 (7), 137.

b. WETZEL, R., 1948.—“Zur Epidemiologie des Lungenwurmbefalls bei Rindern.” 3 (8), 141-148.

c. GLÄSSER & WEITZNER, 1948.—“Nochmals die Distomatose des Rindes in ihrer Beziehung zu den Enteritisbakterienausscheidern und zum Kälberparatyphus.” 3 (8), 151-152.

(204a) Habersang describes a case of thrombosis of the nasal veins of a horse from which numerous specimens of an unspecified strongyle were recovered.

A.E.F.

(204b) Systematic faecal examinations extending over an entire year show conclusively that cattle acquire immunity to *Dictyocaulus viviparus*. The immunity is first evident 16-22 weeks after calves are put out to pasture and is fully developed at an age of 1½-2 years. In many cases (50% in Wetzel's experiments) this acquired immunity does not lead to complete elimination of the worms, and these animals become carriers with subclinical infections. Since it is shown that *D. viviparus* larvae cannot overwinter on pasture, it is these carriers which are responsible for re-infecting grazing land in succeeding summers. Treatment by means of intratracheal injections reduces greatly the number of parasites, and stimulates (in conjunction with adequate feeding) the natural defence mechanisms. But the surest way of eliminating *D. viviparus* from a herd of cattle is to separate the grazing of calves in their first year from that of older calves. Young calves and adult cattle may graze together since the latter are rarely infected.

A.E.F.

(204c) Glässer & Weitzner show that from 1·2 to 1·6% of cattle infected with liver-fluke are carriers of the Gärtner bacillus [*Salmonella enteritidis*]. Cattle with unaffected bile ducts and gall-bladders are much less likely to be carriers. The eradication of liver-fluke infestation from cattle is a necessary preliminary to the reduction in the number of *S. enteritidis* carriers.

A.E.F.

205—Monthly Report. Ministry of Agriculture, Northern Ireland.

a. ANON., 1948.—“Parasitic worm diseases.” 22, 328-332.

(205a) [This is reprinted from *Leafl. Min. Agric. N. Ire.*, 1948, No. 91, 7 pp.]

206—Natura Jutlandica.

a. OVERGAARD, C., 1948.—“An apparatus for quantitative extraction of nematodes and rotifers from soil and moss.” 1, 271-278.

(206a) Overgaard describes an apparatus for extracting nematodes and rotifers from samples of soil and moss. It consists of a set of nine small Baermann funnels housed in a box, the lid of which carries an electric light bulb capable of heating the upper compartment of the box to about 30° C. The small samples of soil or moss, 1-4 c.c. in bulk, are spread out in a shallow layer on wire screening, 1 mm. mesh, suspended within the funnels. Nematodes emerge into water within the funnels, are temporarily paralysed by the heat, fall down the stems, and can be run out into a dish and collected under a microscope. Extraction is complete in 12 hours. It is pointed out that in soil and moss samples which have been stored at 0° C., no change occurs in the population over a period of three weeks.

T.G.

207—Nature. London.

a. ELLENBY, C., 1948.—“Resistance to the potato-root eelworm.” [Correspondence.] 162 (4122), 704.

(207a) Ellenby, who since 1941 has been testing South American *Solanum* spp. for susceptibility to *Heterodera rostochiensis*, reports that *Solanum Ballotii*, though not completely immune, has shown itself to be exceptionally resistant in tests conducted during 1945, 1946, and 1947.

T.G.

208—Naturvidenskabelige Skrifter. (Det Laerde Selskabs Skrifter, Aarhus.) Copenhagen.

a. OVERGAARD, C., 1948.—“Studies on the soil microfauna I. The moss inhabiting nematodes and rotifers.” No. 1, 98 pp.

(208a) Overgaard has made an ecological study of the nematodes and rotifers inhabiting moss and the subjacent soil. He describes his methods of collection and lists the nematodes identified in moss and soil, and shows that the species are identical but the percentage distribution usually differs for the two habitats. One species, *Plectus rhizophilus*, is almost restricted to moss; other genera and species, such as *Dorylaimus obtusicaudatus*, *Tylencholaimus mirabilis*, and *Acrobelus ciliatus*, are almost restricted to soil. When moss is dry practically the whole

of the fauna is confined to the bottom layers. When moss is wet the nematodes become active in the free water. 90% of the nematodes which comprise the moss fauna are forms which are capable of swimming in the free water and are of rather slender build; those species which are mainly confined to the subjacent soil are stouter forms incapable of rapid body flexure. Evidence is adduced that the nematodes probably feed on bacteria, algae, and protozoans and other small animals.

T.G.

209—Nederland-Indische Bladen voor Diergeneeskunde.

- a. BOER, E. DE, 1948.—“Filariasis bij honden en de differentieel diagnose van rabies.” 55 (3/4), 175-177. [English summary p. 177.]
- b. KRANEVELD, F. C. & MANSJOER, M., 1948.—“Infectie met *Eurytrema pancreaticum* (Janson 1889) bij runderen op Java.” [Veterinaire snapshots No. 44.] 55 (3/4), 226b.

(209a) Material from the brain of a dog which had been destroyed after showing symptoms of rabies was submitted to the Medical Laboratory, Macassar (Celebes). Examination for rabies was completely negative but numerous microfilariae, which appeared to be identical with *Mf. immitis*, were recovered from the brain tissue. De Boer draws attention to the importance of differential diagnosis in a country where both rabies and dirofilariasis are common in dogs, and suggests blood examination for microfilariae in cases of suspected rabies.

A.E.F.

(209b) Kraneveld & Mansjoer report that 26 out of 100 cattle examined in Central Java were infected with *Eurytrema pancreaticum*. In 60% of the cases the number of worms varied between 20 and 80; in the remainder over a hundred were found, five cases having more than a thousand (the greatest number was 1,500). It is stated that the only previous record of *E. pancreaticum* in Java is that of Does (1907). The note is illustrated with a photograph of part of a heavily infected pancreas.

A.E.F.

210—Nederlandsch Tijdschrift voor Geneeskunde.

- a. HARTZ, P. H., 1948.—“Een geval van filariasis bancrofti.” 92. Jaargang, 1 (6), 432-433.

(210a) Hartz, replying to a paper under the same title by Kooy [Ned. Tijdschr. Geneesk., 1947, Jaarg. 91, p. 3481], in which filariasis was reported in Paramaribo among Europeans whose standards of hygiene were low, points out that poor hygiene is not a contributory factor to infection with *Wuchereria bancrofti*. Cases have been observed in Curaçao since 1935 among Europeans living under very healthful conditions. He also refutes the suggestion that blood of infected persons can be used for transfusion without clinical risks, pointing out that microfilariae of *W. bancrofti* and *W. malayi* can be implicated in a number of pathological conditions, e.g. granuloma of the spleen and of the mammary gland, and tropical eosinophilia.

E.M.S.

211—New England Journal of Medicine.

- a. TOWNE, C. E., 1948.—“Surgery of elephantiasis of the scrotum of filarial origin.” 239 (6), 223-226.

212—New Zealand Journal of Science and Technology. A. Agricultural Research Section.

- a. JACKS, H., 1948.—“A survey of tomato diseases under glass.” (for 1947), 29 (3), 164-169.

(212a) *Heterodera marioni* is cited amongst the major diseases of tomato crops in New Zealand. The figure of 51.4% infection was the highest for any of the diseases mentioned, though not all the properties surveyed were examined for eelworm.

J.B.G.

213—North American Veterinarian.

- a. CHADDOCK, T. T., 1948.—“Some facts relative to disease as found in wildlife.” 29 (9), 560-567.
- b. HAWTHORNE, G. A., 1948.—“Roundworms in pigs.” [Questions & Answers.] 29 (9), 588, 590.

(213a) In this account of his study of disease in game birds and game animals at the State Experimental Game and Fur Farm at Poynette, Wisconsin, Chaddock notes the

prevalence of blackhead in pheasants, grouse, quail, peafowl, wild turkey, junglefowl, and Chukar partridge. The control measure adopted was the individual dosing of 22,000 birds with a No. 00 capsule containing $1\frac{1}{2}$ grains of phenothiazine to remove the caecal worms; this, with rotation of the fields and the placing of breeding birds on wire, gave excellent results. Mass treatment was of little value. 11,000 birds were treated for gapeworm infection, each individual being given approximately 0.01 gm. of barium antimonyl tartrate by means of a powder blower.

R.T.L.

214—Notas Agronomicas. Estación Agrícola Experimental de Palmira, República de Colombia.

a. ESTRADA R., N. & VILLAMIL G., F., 1948.—“Experimento de campo sobre el control de nemátodos a base de D-D.” 1 (1), pp. 1-5. [English summary pp. 4-5.]

(214a) In a field heavily infected with *Heterodera marioni*, and planted with New Pritchard variety tomato plants, no significant differences in the number of affected plants followed the injection of D-D mixture at the rates of 100 lb., 200 lb., and 300 lb. per acre, although there was a slight increase in the weight of fruit with 300 lb. per acre. R.T.L.

215—Papers and Proceedings of the Royal Society of Tasmania.

a. CROWCROFT, P. W., 1948.—“A new digenetic trematode from the barracouta (Syncoeliidae—Digenea).” Year 1947, pp. 49-57.
 b. CROWCROFT, P. W., 1948.—“Notes on the occurrence of the nematode *Mermis nigrescens* Dujardin and its effect on the common earwig in Tasmania.” Year 1947, pp. 59-62.

(215a) Attached to the gill-rakers of twelve *Thysites atun* caught off Nubeena, Tasmania, were numerous specimens of a new fluke named *Capiatestes thysitae* n.g., n.sp. A peculiar feature of the new genus is the presence of five separate well developed ovaries. The yolk glands are constantly seven in number. There are 18 testes. R.T.L.

(215b) In Tasmania *Forficula auricularia* is frequently infected with *Mermis nigrescens*. This infection is of economic importance as it prevents the formation of eggs. Heavy initial infections are lethal and the emergence of the nematode larvae causes a number of deaths.

R.T.L.

216—Phytopathology.

a. ALLEN, M. W., 1948.—“Relation of soil fumigation, nematodes, and inoculation technique to big vein disease of lettuce.” 38 (8, Sect. 1), 612-627.
 b. TARJAN, A. C., 1948.—“The inefficacy of ethylene chlorobromide as a therapeutic agent in the treatment of gardenias infected with the root-knot nematode.” 38 (10), 845-847.

(216a) Allen conducted an investigation into the aetiology of a virus disease of lettuce known as big vein. Infection can take place in the absence of a vector and is soil-borne, being transmitted to the plant by contact of the root system with soil containing the virus. He carried out experiments to determine whether certain nematodes, which may be found associated with lettuce roots, were involved as vectors of the disease. None of the following species, however, was found capable of serving as a vector: *Aphelenchoides parietinus*, *Aphelenchus avenae*, *Acrobeloides bütschlii*, *Chiloplacus* sp., *Criconemooides mutable*, *Dorylaimus monohystera*, *Dorylaimus obscurus*, *D. simplex*, *Panagrolaimus subelongatus*, *Paratylenchus macrophallus*, *Rhabditis monhystera*, and *Tylenchus filiformis*. T.G.

(216b) Tarjan submitted potted 2-years-old seedlings of *Gardenia jasminoides*, infested with *Heterodera marioni*, to various concentrations of ethylene chlorobromide. Some plants received one and some two treatments, and the effects were judged one month after treatment by determining the numbers of the parasite in the roots by a modification of the Baermann technique. Plants were found capable of tolerating as much as 0.25 c.c. per pot of the chemical in one dose, or two doses of 0.10 c.c. given two weeks apart. The only treatment at all effective was 0.25 c.c. in a single dose, but this was toxic to some of the replicates. T.G.

217—Plant Disease Reporter.

- a. TARJAN, A. C. & COX, C. E., 1948.—“Two new nematode diseases of the African violet.” 32 (6), 256.
- b. LEUKEL, R. W., 1948.—“*Dilophospora* and nematode disease in wheat in South Carolina.” 32 (7), 291-292.
- c. WEIMER, J. L. & SELL, O. E., 1948.—“Stem nematode and Fusarium wilt of alfalfa observed for the first time in Georgia.” 32 (8), 350-351.

(217a) Tarjan & Cox examined plants of *Saintpaulia* sp. showing stunting and foliar wilting, and found the roots of two of them to be parasitized by the meadow nematode, *Pratylenchus* sp., and one with small galls due to *Heterodera marioni*. Neither parasite has previously been reported from *Saintpaulia*. T.G.

(217b) Leukel reports on two occurrences in South Carolina of the fungal disease *Dilophospora alopecuri* of wheat, the spores of which are carried on the surface of the larvae of the wheat gall eelworm, *Anguina* [= *Anguillulina*] *tritici*. One of these was found in July, 1946, and the other in April, 1948. The farmer on whose land the infested crop occurred in 1946 treated the threshed grain, after well cleaning it, with a copper sulphate steep in which the trash and light kernels were skimmed off. This appears to have cleared up the infestation of both nematode and fungus. T.G.

(217c) *Ditylenchus dipsaci* is reported as killing alfalfa in Georgia. The field had grown alfalfa for 5 years before the planting two years ago of the present stand. The disease was distributed widely over the field, being most serious in the lower parts. It was apparently not seed-borne. This is a first record for Georgia. J.B.G.

218—Poultry Science.

- a. EDGAR, S. A., 1948.—“Anthelmintic activity of sodium fluoride in chickens.” 27 (4), 525-527.

(218a) Edgar confirms the conclusions of Enzie & Jaquette [see Helm. Abs., 16, No. 132d] that sodium fluoride is an unsuitable anthelmintic for poultry owing to its toxicity and relative inactivity at tolerated levels. R.T.L.

219—Proceedings of the Helminthological Society of Washington.

- a. CHITWOOD, B. G. & FELDMESSER, J., 1948.—“Golden nematode population studies.” 15 (2), 43-55.
- b. DOUGHERTY, E. C. & CALHOUN, H. G., 1948.—“Experiences in culturing *Rhabditis pellio* (Schneider, 1866) Bütschli, 1873 (Nematoda: Rhabditidae), and related soil nematodes.” 15 (2), 55-68.
- c. KUNTZ, R. E., 1948.—“Abnormalities in development of helminth parasites with a description of several anomalies in cercariae of digenetic trematodes.” 15 (2), 73-77.
- d. MAO, C. P. & LI, L., 1948.—“A note on the morphology of *Schistosoma japonicum*.” 15 (2), 77-79.
- e. WEHR, E. E., 1948.—“A cropworm, *Capillaria contorta*, the cause of death in turkeys.” 15 (2), 80.

(219a) Chitwood & Feldmesser present the results of a number of population studies on *Heterodera rostochiensis*, based on their work in Long Island. Counting cysts in soil is based on the wet sieving of a weighed quantity of dry soil, cysts being dissected and only viable ones counted. For counting white cysts per plant, lower stems and roots are preserved in 10% formalin in mid-June and later torn apart in water and sieved, the roots being weighed and the white cysts counted in ten 1 c.c. aliquots from 200 c.c. of suspension in water. The complete root system is not normally collected. In Long Island cysts are scanty below a plough sole of clay, 6-9 inches deep. Analysis of the soil volume occupied by a single potato plant showed 31,000 new and 277,000 old cysts, most of the latter empty. There is some evidence for a 50% sex ratio. The rate of population increase is higher in less populated soils. Experimentally, to 4-in. pots of clean soil were added 1-12,000 viable cysts; potatoes were grown and new cysts counted. The rate of reproduction varied from 23 times (10 cysts added) to 0.5 times (12,000 added), the latter pots producing significantly lower weights of tubers and roots with

1,200 cysts per gm. of root. A heavily infested field may contain 2,000,000 female larvae per plant potentially, yet a plant can support only about 40,000. There is thus an enormous natural mortality, and fumigants of only moderate killing power may have little or no effect on the population of new cysts. Thus, a 76% reduction in viable cysts (by using 1% ammonia) was followed by a reduction of only 4% in new cysts on subsequently planted potatoes. The two criteria approximate only above a 98% kill.

B.G.P.

(219b) Dougherty & Calhoun describe investigations they have carried out on the culturing of free-living nematodes, mainly species of *Rhabditis*, in order primarily to determine the minimum nutritional requirements that will support normal growth and reproduction. The cultural requirements of a number of *Rhabditis* species have been studied, and methods of sterilizing nematodes by antibiotics have been investigated leading to their culture on agar slopes with single bacterial species. The authors have also succeeded in growing two species of *Rhabditis* (*R. pellio* and *R. elegans*) under germ-free conditions on a complex medium containing Seitz-sterilized liver extract. They prove that a heat-labile factor (or factors) in liver extract is required for growth and reproduction of these two species of *Rhabditis*. T.G.

(219c) Kuntz summarizes the published records of abnormalities in larval and adult cestodes and trematodes, and illustrates as additional instances (i) duplication of the stylet in the cercaria of *Sellacotyle mustelae*, (ii) doubling of the acetabulum in *Tamerlania bragai*, and (iii) twinning of the cercariae of *Notocotylus urbanensis* and *Schistosoma mansoni*. He speculates on their cause and genetic significance.

R.T.L.

(219d) From several hundred specimens of *Schistosoma japonicum* obtained from experimentally infected rabbits and guinea-pigs, Mao & Li report that the caecum constantly occupies the posterior third of the body and that the number of testes is invariably seven. Several instances of abnormality in the union of the gut branches were observed.

R.T.L.

(219e) Heavy infections of the mucosa of the crop and oesophagus with *Capillaria contorta* caused serious disease and some deaths in a flock of Beltsville Small White laying turkeys near Manassas, Virginia. The appearance of the infected birds is shown in a photograph.

R.T.L.

220—Proceedings of the United States National Museum.

a. ABBOTT, R. T., 1948.—“A potential snail host of oriental schistosomiasis in North America (*Pomatiopsis lapidaria*).” 98 (3222), 57-68.

(220a) Although epidemiological conditions in North America are not favourable for the spread of schistosomiasis, the fact that Stunkard has recently obtained sporocysts of *Schistosoma japonicum* in the North American snail, *Pomatiopsis lapidaria*, under laboratory conditions has led Abbott to give a description of this mollusc, which is very similar to *Oncomelania nosophora* and *O. hupensis*, and suggests that their common ancestor's range extended across the old Bering Sea. The distribution of *P. lapidaria* ranges from Minnesota through southern Ontario to southern New York, thence to Alabama and Texas and from Pennsylvania to Virginia. Selected locality records are cited and indicated on a map, which also shows the distribution of *Paragonimus kellicotti* for which *Pomatiopsis lapidaria* is the intermediate host.

R.T.L.

221—Publications. Tobacco Research Board, Southern Rhodesia.

a. THOMPSON, J. W., 1948.—“Cyanamide for control of eelworm.” No. 11 [Annual Report of the Trelawney Tobacco Research Station for 1947], p. 43.

(221a) In a brief note Thompson records that [calcium] cyanamide at 1,000 lb. per acre had no effect against eelworm [*Heterodera marioni*] in experimental tobacco plots. It appreciably controlled weeds, but the tobacco was coarse and lank owing to the excessive nitrogen involved. The poor results may have been due to an unusually dry season.

B.G.P.

222—Report of the Administrator of Agricultural Research. U.S. Department of Agriculture.

- a. UNITED STATES BUREAU OF ANIMAL INDUSTRY, 1948.—“Report of the Chief of the Bureau of Animal Industry. Livestock and poultry parasite investigations.” Year 1946-47, pp. 113-123.
- b. UNITED STATES BUREAU OF ENTOMOLOGY & PLANT QUARANTINE, 1948.—“Report of the Chief of the Bureau of Entomology and Plant Quarantine. Control projects.” Year 1946-47, pp. 218-236.
- c. UNITED STATES BUREAU OF PLANT INDUSTRY, SOILS, & AGRICULTURAL ENGINEERING, 1948.—“Report of the Chief of the Bureau of Plant Industry, Soils, and Agricultural Engineering. Crops and their management.” Year 1946-47, pp. 275-319.

(222a) The 1946-47 research programme of the Zoological Division is outlined. Cysticerci in beef were not killed by temperatures up to 50° C. but at 57° C. they were unable to evaginate their scolices, showed no flame-cell activity, and were digested when swallowed by a human being: 60° C. (140° F.) has, therefore, been adopted to meet the Federal meat inspection requirements. A dose of 100 gm. hexachlorethane given in suspension resulted in the complete disappearance of liver-fluke eggs from 428 out of 463 adult cattle within three weeks; in the others the eggs were greatly diminished. Post-mortem examination showed no flukes in 15 infected calves after treatment. It is suggested that hexachlorethane is more potent when the liver function is practically normal. It also destroyed *Haemonchus contortus* in young calves. This drug is well tolerated by cattle except when they are extremely debilitated. Self-medication with phenothiazine in salt (1:9) produced no ill-effects in sheep over a period of five years. The fringed tapeworm was observed in the small intestine, bile-ducts, and pancreatic duct of about 63% of 160 lambs reared to feeder age in New Mexico; infection was usually acquired on irrigated pastures, and infected livers are subject to condemnation under Federal meat inspection laws. It was found that *Ascaris* retards the rate of growth of pigs; sodium fluoride has been widely used as an anthelmintic but it is dangerous when given in slops, milk, or garbage. The injuries following infection with nodular worms were due to those nodules which persisted in the intestinal wall, and not to the adult parasites in the intestine. A new anthelmintic, toluene (methyl benzene), at a dose rate of 0.1 c.c. per lb. body-weight given after 18-24 hours' fast, removed all ascarids from two dogs, 99% of 351 hookworms from four dogs, and 75% of 161 whipworms from six dogs, and was well tolerated; this drug also proved effective at a dose rate of 0.5 c.c. per kg. body-weight against roundworms in poultry, removing 98% of 164 worms from three birds. All 19 ascarids were removed from three pigs at a dose of 0.2 c.c. per lb. body-weight. Although these results show great promise this new anthelmintic has not yet emerged from the experimental stage.

R.T.L.

(222b) On p. 226 an account is given of efforts to control and prevent spread of the golden nematode [*Heterodera rostochiensis*]. 1,081 acres known to be infected were taken out of potato production in 1946 by the New York State Department of Agriculture and Markets. An additional 1,600 acres were found to be infested after spring planting. The potatoes on this acreage were processed at alcohol plants or used at military installations or food-processing plants within New York City. During 1946 25,362 acres were surveyed in Nassau and Suffolk Counties, Long Island. In Nassau County 1,595 acres were found infested for the first time: none were detected in Suffolk County. In all, 2,676 acres are now known to be infested. Five tractor-mounted applicators were used on 1,557 acres to apply D-D fumigant 6 inches below the surface. Each machine treated 15 acres per day with 450 lb. per acre [the results are not given]. The potato rot nematode (*Ditylenchus destructor*) was not found during a survey carried out in 15 potato-growing States.

R.T.L.

(222c) In the U.S.A. soil fumigation for nematode control is now being applied as a field-scale practice for underground crop pests. Soil fumigation tests (pp. 311-312) were made at Tifton, Georgia, with D-D mixture on light sandy loam severely affected with root-knot [*Heterodera marioni*]. 150-200 lb. per acre reduced nematode damage to a trace and increased yields. Similar results were obtained with ethylene dibromide. It is stated that soil fumigation cannot be recommended for the present as the tobacco tended to be excessively green late in the season and the quality of the leaf was lowered. A 20-year experiment (pp. 312-313) on the

control of root-knot by crop rotation in light sandy loam showed that bare fallow gave the best results. Two years of peanuts were almost as good but there were constant fluctuations in the plots. The infection did not accumulate steadily in the soil. In 1947 at least 100,000 acres of cropland were treated with soil fumigants (pp. 314-316). Those most widely used were D-D mixture, and ethylene dibromide in a naphtha diluent. Cost varied from \$18 to \$40 per acre. Attempts to clean potato tubers of *Heterodera rostochiensis* cysts by brushing and washing gave a maximum of 89% success. Fumigation and dipping with various chemicals were not satisfactory, but ammonia in 0.5% and 1% solution at 110° F. for 5 minutes had an efficacy index of 0.984-0.999.

R.T.L.

223—Report of the Department of Agriculture & Stock, Queensland.

- a. SMITH, J. H., 1948.—“Tobacco pests.” Year 1947-48, p. 44.
- b. LEGG, J., 1948.—“Report of the Animal Health Stations.” Year 1947-48, pp. 56-59.
- c. MOULE, G. R., 1948.—“Report of the Sheep and Wool Branch.” Year 1947-48, pp. 59-62.

(223a) *Heterodera marioni* is an important pest of tobacco in Queensland. It is stated that while investigations show that D-D mixture may be a useful nematicide for seed-beds, its performance in the field has not been convincing.

R.T.L.

(223b) No cases of clinical helminthiasis were revealed by monthly faecal examinations of groups of calves 2 to 12 months old on dairy farms in the Beaudesert, Pimpama, and Townsville areas of Queensland. The calves carried only a light nematode burden. Only light nematode infections occurred in horses in the south-western part of the State.

R.T.L.

(223c) The dry weather during 1947 to 1948 reduced worm populations in sheep in central and northern Queensland, but severe outbreaks occurred on the Darling Downs. Observations on the seasonal incidence of parasitic worms of sheep have been extended to the “desert” country east of Hughenden.

R.T.L.

224—Report of the Ross Institute Industrial Advisory Committee.

- a. GARNHAM, P. C. C., 1948.—“The control of *Onchocerca volvulus*.” 18th Meeting, pp. 12-14. [Discussion pp. 17-21.]
- b. ALVES, W., 1948.—“Recent work in Southern Rhodesia on schistosomiasis.” 18th Meeting, pp. 15-17. [Discussion pp. 17-21.]

(224a) [This is a popular and condensed account of a paper by Garnham & McMahon in *Bull. ent. Res.*, 1947, 37 (4), 619-628. For abstract see Helm. Abs., 16, No. 86a.]

(224b) Alves gives a brief account of recent work on bilharziasis in Southern Rhodesia in which a rapid diagnosis by skin tests and a rapid intensive treatment with antimony were synchronized with molluscan destruction by copper sulphate. Attention is drawn to the potential danger from this disease to the large-scale agricultural, industrial and mining development of Africa now under consideration.

R.T.L.

225—Revista Brasileira de Biologia.

- a. MACHADO Filho, D. A., 1948.—“Echinorhynchidae do Brasil. I. Três espécies novas de *Echinorhynchus* Zoega in Mueller, 1776 e redescrição de *Echinorhynchus jucundus* Travassos, 1923.” 8 (2), 265-273.

(225a) Machado Filho describes three new echinorhynchids from Brazilian fishes: *Echinorhynchus gracilis* n.sp. from *Brycon hilarii* in São Paulo, *E. salorenensis* n.sp. from *Mylossoma paraguayensis* in Mato Grosso, and *E. gomesi* n.sp. from Myliinae [river fish]. All these species resemble to some extent *E. jucundus* which is redescribed.

P.A.C.

226—Revista del Instituto de Salubridad y Enfermedades Tropicales. México.

- a. CARMEN NÚÑEZ, M. DEL & MAZZOTTI, L., 1948.—“Incidencia de triquinosis en gatos de la ciudad de México.” 9 (1), 51-54. [English summary p. 54.]

(226a) *Trichinella spiralis* occurred in 10-gm. samples from the diaphragms of 25% of 300 cats autopsied in Mexico City. The number of cysts per gm. was 1-10 in 38, 11-50 in 25, 51-200 in 9, 201-1,000 in 2, and in one instance there were over 1,000.

R.T.L.

227—Revista do Serviço Especial de Saúde Pública. Rio de Janeiro.

a. GOMES DE MORAES, R., 1948.—“ Contribuição para o estudo do *Strongyloides stercoralis* e da estrongiloidose no Brasil.” 1 (3), 507-624. [English summary pp. 612-615.]

(227a) Gomes de Moraes discusses the synonymy and plurality of the species of *Strongyloides* in man, primates, dog, cat and coati, and the importance of these hosts as reservoirs. Two dogs were experimentally infected with material from a human case. The males found in the body are considered to be really free-living forms developed precociously before being voided, and it is doubtful if the rhabditiform males found in the human body are able to inseminate the filariform females. Auto-exo-infestation and auto-endo-infestation are considered possible. He is of opinion that morbid changes are associated with these infections. A modified Baermann method applied to faeces revealed over three times the number of cases identified by Faust's method. By placing detached intestine in contact with water on the mesh screen of the Baermann apparatus adult parasitic females, larvae and free-living adults were obtained. In the Rio Doce area of Brazil 58.3% of 1,007 cases were positive.

R.T.L.

228—Revue Horticole de l'Algérie.

a. TINGUY, P. DE, 1948.—“ La lutte contre les nématodes. Les anguillules.” 52 (7), 37-39.

(228a) Eelworms have become a serious problem in Algeria, attacking the roots of market garden crops, vines, and fruit trees, especially in sandy soils. D-D has proved a satisfactory fumigant for controlling them. Application by hand-injector is long and costly, taking 186 man-hours per hectare, but a locally designed strip-injector, pumping the D-D behind the tines of a cultivator, covers a hectare in 3-5 hours. The latest model has loose tines capable of jumping rocks in the soil.

B.G.P.

229—Rivista di Agricoltura Subtropicale e Tropicale. Firenze.

a. CASTELLANI, E., 1948.—“ Galle ovaricole dello *Sporobolus Brockmanni*.” 42 (7/9), 150-153. [English summary p. 153.]

(229a) Castellani found nematode-containing galls in the inflorescence of the grass, *Sporobolus Brockmanni*. The material had been collected in 1916 close to Ghinda, Eritrea, and had been preserved since that time as a dried specimen. The galls were a little more than 2 mm. long. Within the gall cavity adult nematodes were not found but only larvae which Castellani identifies as *Anguina agrostidis* (Steinbuch) Filipjev & Schuurmans Stekhoven [= *Anguillulina agrostis*. The author points out that he is correcting the spelling of the specific name by putting it in the genitive case, but in so doing he is committing the same error as was made in 1865 by Bastian who coined the name *agrostidis*.] T.G.

230—Rivista di Biologia. Perugia.

a. CERRUTI, A., 1948.—“ Le forme larvali di trematodi rinvenute nei mitili del Mar Grande e del Mar Piccolo di Taranto.” 40, 74-105.

(230a) A cercaria found commonly in *Mytilus galloprovincialis* in the Mar Piccolo of Taranto, previously (1945) referred to *Metacercaria (Gymnophallus) margaritarum*, is now considered to represent a new species outside the genus *Gymnophallus* and is named *Cercaria dubia* n.sp. The tailless cercariae are contained in orange-coloured sporocysts which develop from miracidia, the redia stage being suppressed; cercariae have been observed free in the body-cavity of the mussel, and in the gonadal ducts, but their subsequent life-history is not known. *C. dubia* was never observed to produce pearls, but sometimes caused parasitic castration of its host. *Cercaria megalophallus* was found once only in Mar Piccolo mussels. In the Mar Grande the common species is *Metacercaria (Gymnophallus) perligena*, and *C. dubia* was rarely found. [*Cercaria dubia* Cerruti, 1948 is preoccupied by *C. dubia* Wiśniewski, 1935.] E.M.S.

231—Schweizerische Medizinische Wochenschrift.

a. BIYAL, N., 1948.—“Ueber die Wirkung des Reinbenzins auf die Darmparasiten und seine Folgen.” 78 (23), 571-572.

(231a) Human helminthiasis in Turkey is very widespread, Ascaris, Taenia, Enterobius, Necator, and Trichuris being most frequent in occurrence. Biyal finds that purified benzine, frequently used as a vermifuge on account of its cheapness, is both safe and effective against all the above species. The dose is 20-60 c.c. according to age, administered with syrup of gum arabic and followed by a purge. In enterobiasis a daily enema of one dessertspoonful to a litre of water can be continued for a week. Residual infections were found in 7 out of 57 treated cases with Ascaris, 4 out of 48 with Taenia, 8 out of 45 with Enterobius, 1 out of 5 with Necator, and none of 14 cases of mixed infection.

E.M.S.

232—Science and Culture. India.

a. BHALERAO, G. D., 1948.—“Blood-fluke problem in India.” [Abstract of sectional presidential address, Medical and Veterinary Sciences, at the Science Congress, Patna.] 13 (8), Suppl. p. 4.

233—Semana Médica. Buenos Aires.

a. PÉREZ FONTANA, V., 1948.—“Nuevo método de operar en el quiste hidático del pulmón.” Año 55, 1 (2823), 283-290.
 b. BACIGALUPO, J., TREPAT, L. & RAUL ETCHEGARAY, E., 1948.—“Dermatosis lineal por larvas de nematodes (larva migrans).” Año 55, 1 (2823), 290-296.

234—South African Engineer.

a. CAWSTON, F. G., 1948.—“The importance of engineering in water purification.” 38 (357), 21.

(234a) Cawston recommends the construction of tanks and bore-holes which can be kept free of pollution, as being preferable to the wholesale clearing of vegetation and scavengers along streams and the chemical treatment of stream water, as means of controlling such water-borne diseases as schistosomiasis.

E.M.S.

235—Svensk Frötidning.

a. BINGEFORS, S., 1948.—“Iakttagelser beträffande klövernematodens utbredning i östra Mellan-Sverige och södra Norrland sommaren 1947.” 17 (1), 2-6.

(235a) Nilsson-Ehle's observations on the clover nematode, *Anguillulina dipsaci*, 45 years ago were from western Skåne. More recently a general distribution of the clover nematode has been noticed in Uppland, the Uppsala plain, and Ultuna. In Ultuna, red clover has often disappeared in the first year's grazing, but lucerne is not much affected. Other districts affected are Örbyhus, Rasbo, Alunda, Enköping, Mälardalen, Svartsjö, Söderköping, Örebro, Källtorp, Västmanland, Dingtuna, Kopparberg, Avesta, Aspeboda, Gagnef, Leksand, Rättvik, Bjursås, Vassbo, Bollnäs, Ljusdal, Medelpad, Tuna, Ljusnandal, Ljungandal, Härnösand, Örnsköldsvik, Sidensjö, and the rivers Dal, Indal, Nätra, Ångerman. Merkur and Resistenta, the varieties most resistant to attack by the parasite, are not very resistant to cold. It is hoped to produce shortly a variety which combines resistance to parasitic attack with resistance to cold and suitability for cultivation.

J.T.G.

236—Tierärztliche Umschau.

a. LANG, L., 1948.—“Todesfälle von 3 Fohlen durch Massenspulwurmbefall.” 3 (11/12), 181.
 b. RINDFLEISCH-SEYFARTH, M., 1948.—“Der Sumpfbiber und seine bisher zur Untersuchung gelangten Infektions- und Invasionskrankheiten.” 3 (13/14), 214-216.
 c. STRAUBE, 1948.—[Symptoms and treatment of stomach worm disease in calves and young cattle.] [Questions & Answers.] 3 (15/16), 252.
 d. SCHELLNER, 1948.—[Meat-inspection finding of cysticerci in pigs.] [Questions & Answers.] 3 (15/16), 252.
 e. RASCHKE, O., 1948.—“Die wirksamere Bekämpfung der gesundheitsschädlichen Rinderfinne.” 3 (21/22), 363-364.

(236a) Lang reports three cases of massive, fatal Ascaris infections in 1-year-old foals, each of which was characterized by severe oedema of the whole head, especially the jaws. Post-mortem examination showed that the whole of the head musculature was necrotic. A.E.F.

(236b) Rindfleisch-Seyfarth briefly reviews the infectious and parasitic diseases of nutria. The helminths mentioned as having been reported from nutria are the following: *Fasciola hepatica*, *Dicrocoelium dendriticum*, *Stichorchis waltheri*, *Hymenolepis octocoronata*, *Anoplocephala* sp., hydatid, *Coenurus serialis*, *Strongyloides myopotami*, *Heligmosomum polygyrus*, *Trichuris*, *Filaria kitti*, *Subulura* sp., and *Trichinella*. A.E.F.

(236e) Raschke pleads for a control programme against bovine cysticerciasis, the incidence of which in Germany in 3-months-old calves has increased from 0.32% in 1904 to 0.43% in 1936. No suggestions are made. A.E.F.

237—Tijdschrift over Plantenziekten.

a. SCHREVEN, D. A. VAN, 1948.—“Onderzoeken met betrekking tot enkele plagen en ziekten van Vorstenlandse tabak.” 54 (5/6), 149-174. [English summary pp. 170-172.]

(237a) In this extensive investigation into the pests and diseases of tobacco in the Vorstenlanden, Java, Schreven mentions that on soils unsuitable for wet rice culture, owing to lack of water, tobacco may suffer severely from nematode attack [genus and species unnamed]. In irrigated soils nematodes cause practically no damage. T.G.

238—Transactions of the Royal Society of Tropical Medicine and Hygiene.

a. ERFAN, M., 1948.—“Pulmonary schistosomiasis.” 42 (2), 109-113. [Discussion pp. 113-116.]
b. GOODLIFFE, F. A. & BLAIR, D. M., 1948.—“Hatching speed of schistosome miracidia.” [Correspondence.] 42 (2), 205.

(238a) At least 33% of those who have schistosomiasis in Egypt have also pulmonary schistosomiasis. It is commonest between the ages of 10 and 30 years. Erfan describes the pathology and clinical picture. Radiologically small branches of the pulmonary artery show nodules about 1 mm. in diameter along their course; later there are hilar shadows. The only certain means of diagnosis is the finding of eggs in the sputum, which is rare. R.T.L.

(238b) From the study of a ciné film exposed during the hatching of the miracidia of *Schistosoma haematobium* at a temperature of about 72° F., it is estimated that the hatching took place within $\frac{1}{48}$ th of a second. R.T.L.

239—Veterinarski Arhiv.

a. ŠMIGOVC, V., 1948.—“Pokušaji liječenja invazije želučano-crijevnih nematoda kod mladih goveda nekim antihelminticima.” 18 (7/8), 183-184. [German summary p. 184.]

(239a) In an abstract of his doctoral dissertation Šmigovc recounts his anthelmintic treatment of young cattle with phenothiazine (25 animals), arsenic trioxide (9 animals) and “Protumetilj” (10 animals). The doses used and the ages of the animals are not given. None of the drugs used gave very good results in the control of stomach worms, hookworm, and *Strongyloides*; four animals died after receiving phenothiazine and one after arsenic trioxide. E.M.S.

240—Veterinary Medicine.

a. SINCLAIR, L. R., 1948.—“Horse meat inspection.” 43 (8), 322-323.
b. OLSEN, O. W., 1948.—“Comparative fasciolicidal efficacy of hexachloroethane and carbon tetrachloride in animals.” 43 (9), 367-370.

(240a) In approximately 5,000 horses slaughtered in the U.S.A. for canning or for animal food, helminth parasites were rarely found. Only one case of infection with *Fasciola hepatica* was observed. Often the liver contained calcified nodules, in several of which a coiled nematode occurred; one of these was identified by Schwartz as *Setaria equina* which was fairly frequently present in the peritoneal cavity. *Anoplocephala magna* was seen several times. R.T.L.

(240b) Doses of 1 c.c. chemically pure carbon tetrachloride, and of 30 c.c. hexachlorethane-bentonite suspension containing 15 gm. of hexachlorethane, each given to five sheep, were equally efficacious in killing adult liver-flukes. In one sheep from each group,

all the flukes were killed. Carbon tetrachloride killed 91-97% of flukes in three sheep and 58% in the remaining one. Hexachlorethane killed 94-99% in three sheep, and 68% in one; in this last animal 48 of 50 surviving flukes were in the extensively malformed gall-bladder. Dead flukes appeared in the faeces 19 hours after medication; the maximum lethal effect of carbon tetrachloride was shown earlier than that of hexachlorethane.

E.M.S.

241—Veterinary Record.

- a. SMYTHE, R. H., 1948.—“Ley farming. II.” **60** (34), 407-409. [Discussion p. 410.]
- b. BOLTON, J., 1948.—“A case of phenothiazine poisoning in young bovines.” **60** (40), 479.

(241a) Smythe considers the salient differences between leys and permanent pastures as they affect stock health. He discusses at considerable length the effect of ley farming on the incidence of parasitic gastro-enteritis and parasitic bronchitis, as it may be deduced from what is known of the bionomics of the helminths concerned.

E.M.S.

(241b) Bolton records phenothiazine poisoning in 20 Shorthorn cattle out of a total of 28 dosed. Dosage rate was 60 gm. for animals 6-12 months old and 90 gm. from 1-2 years old, administered in $\frac{1}{2}$ pint cold water. Symptoms commenced the following morning and were subnormal temperature, constipation, tympany, dullness and weakness, with coma and prostration in extreme cases. Glucose treatment, intravenously and subcutaneously, was ineffective. Seven of the animals died. Post-mortem findings were pallid viscera, distended gall-bladder, and hard faecal boluses in the lower bowel. The carcasses had a peculiar phenolic odour.

J.W.G.L.

242—Yearbook. Institute of Inspectors of Stock of New South Wales.

- a. FAIRFAX, R. E., 1948.—“Carbon tetrachloride poisoning of sheep. A suggested treatment.” Year 1948, p. 73.
- b. CHARLES, G., 1948.—“Keratitis in vealers following the use of phenothiazine.” Year 1948, p. 82.
- c. McBARRON, E. J., 1948.—“Nervous disorders associated with roundworm infestation in horses.” Year 1948, pp. 83, 85.

(242a) The transfer of 100 in-lamb ewes for a short period from natural grass pasture to rye grass and trefoil prior to drenching with carbon tetrachloride resulted in the death of 15 and symptoms of ataxia in others. Treatment with 50 ml. of 20% calcium borogluconate was found to give good results.

J.W.G.L.

(242b) Charles records photophobia, corneal opacity and intense lachrymation in seven vealers out of 48 drenched with $1\frac{1}{2}$ oz. of phenothiazine. Fourteen days later, four were still showing similar symptoms and in addition they had small corneal ulcers.

J.W.G.L.

(242c) McBarron has seen several cases in horses simulating epileptiform seizure. The history, symptoms, and post-mortem findings are described of a case in a medium draught mare: the small intestine was packed with *Parascaris equorum* and this was considered the cause of the symptoms. It is suggested that horses “throwing fits”, if positive for Ascaris, should be given anthelmintic treatment.

J.W.G.L.

NON-PERIODICAL LITERATURE

243—BIESTER, H. E. & SCHWARTE, L. H., editors, 1948.—“Diseases of poultry.” Ames: Iowa State College Press, 2nd edit., xiii + 1,154 pp., \$10.50.

244—GELFAND, M., 1948.—“The sick African. A clinical study.” Cape Town: Stewart Printing Co. (Pty) Ltd., 2nd edit., 699 pp., 38s.

245—INTERNATIONAL CONGRESS ON TROPICAL MEDICINE AND MALARIA
(4th), Washington, D.C., May 10-18, 1948.

- a. GALLIARD, H. & HUARD, P., 1948.—“Research on filariasis in Indochina.” Abstracts, Sect. VI, pp. 74-75.
- b. MAZZOTTI, L., 1948.—“The epidemiological aspects of onchocerciasis in Mexico.” Abstracts, Sect. VI, p. 75.
- c. BROWN, H. W., 1948.—“Recent developments in the chemotherapy of helminthic diseases.” Abstracts, Sect. VI, pp. 75-76.
- d. CHANDLER, A. C., 1948.—“Factors modifying host resistance to helminthic infections.” Abstracts, Sect. VI, pp. 76-77.
- e. VON BRAND, T., 1948.—“The physiology of helminth parasites in relation to disease.” Abstracts, Sect. VI, p. 77.
- f. HOEPLI, R., 1948.—“Helminth extracts and cell proliferation.” Abstracts, Sect. VI, p. 78.
- g. WRIGHT, W. H. & CRAM, E. B., 1948.—“Wartime research in human schistosomiasis.” Abstracts, Sect. VI, pp. 78-79.
- h. AZIM, M. A., 1948.—“Problems in the control of schistosomiasis (bilharziasis) in Egypt.” Abstracts, Sect. VI, pp. 79-80.
- i. BUEDING, E. & OLIVER-GONZALEZ, J., 1948.—“Metabolism of *Schistosoma mansoni*.” Abstracts, Sect. VI, pp. 80-81.
- j. TUBANGUI, M. A., 1948.—“Schistosomiasis japonica and other helminthic diseases in the Philippines.” Abstracts, Sect. VI, p. 81.
- k. CRUZ, W. O., 1948.—“Hookworm anemia—a deficiency disease.” Abstracts, Sect. VI, p. 82.
- l. BHALERAO, G. D., 1948.—“Schistosomiasis in animals.” Abstracts, Sect. X, p. 111.

(245a) Galliard & Huard review the extensive researches on filariasis carried out in Tonking, Indo-China, since 1936. *Wuchereria malayi* has been demonstrated in addition to *W. bancrofti*. The authors believe in the specific pathological action of *W. malayi*, which was never found in urinogenital cases. Symptomless carriers of microfilariae are commoner (7.2%) in the Red River delta than in the upper regions (3.7%). A general survey showed 4.5% *W. malayi* and 2.7% *W. bancrofti*. Surgical operation resulted in the entire reversion of the periodicity curve. *Culex fatigans* and *Anopheles hyrcanus* are the main vectors of *W. bancrofti*, *Mansonioides indiana* and *Anopheles* spp. of *W. malayi*. *Aedes aegypti* may be infected with *W. bancrofti*, and *Aedes aegypti* and *A. albopictus* with *W. malayi*.

H.C.

(245b) In Mexico, onchocerciasis appears to be limited to certain mountainous regions of Chiapas and Oaxaca. The adult is found mainly in nodules in the scalp. Microfilariae are found more frequently in the skin of the upper part of the body. Photophobia is the chief symptom but defective vision or blindness may occur. Skin reactions, apparently allergic, may cause discomfort. The disease is transmitted by three species of *Simulium*, chiefly *S. ochraceum*. Control measures, based mainly on excision of nodules, have been generally ineffective, but eye pathology has apparently been reduced. The drug Hetrazan, recently employed experimentally, seems promising.

H.C.

(245c) Recent search for new, safe, and effective anthelmintics has given us arsenamide and Hetrazan for filariasis, and “lubisan” and phenothiazine for enterobiasis. Certain agents of established value against protozoan infections have proved valuable in helminth infections. Thus, neostibosan is active in Bancroftian filariasis, atebrin in taeniasis, and emetine hydrochloride in trichuriasis when given orally. Anthiomaline, which is used against schistosomiasis, has proved of value also in filariasis. New dosage schedules of various antimonials have increased their effectiveness in schistosomiasis and filariasis. Hexylresorcinol has proved very effective against taeniasis when given as an emulsion by duodenal tube.

H.C.

(245d) Host resistance to helminthic infections may be due to specific immunological reactions induced by antigenic stimulation, or to environmental factors like age, diet, and inherent characteristics. Parasites located parenterally induce general immunological reactions, while those sucking blood or devouring intestinal tissue stimulate mainly local immunity; the two types depend mainly on antigen distribution and concentration, and both lead to resistance to superinfection and often to expulsion of worms. The gutless Acanthocephala and Cestoda stimulate little or no immunity, host resistance to them being mainly environmental. Age and unknown inherent characteristics affect host resistance by influencing the

speed of immunological reactions or by direct environmental effects such as the increase in number of goblet cells of the intestine. Diet affects host-parasite relations by direct action on the parasites or indirectly through interference with immunological responses. Chandler then discusses the effects of vitamin deficiencies, starvation and malnutrition on the host-parasite relationship, especially in regard to nematodes and cestodes, and concludes that a good diet is important in all helminthic infections though not always for the same reason. H.C.

(245e) Von Brand stresses the importance of investigations on the sense physiology of adult worms such as ascarids, which enter narrow ducts and ball together in large masses that may cause intestinal occlusion. Little information is available to correlate sense physiology of adult helminths with their pathological effects. More is known of metabolic interrelationships. In hookworm anaemia the worms are adapted to an aerobic life in an oxygen-poor intestine and the necessary oxygen is obtained from the blood of the host. In *Diphyllobothrium* anaemia the parasites, being large, are forced to live a predominantly anaerobic life which results in the excretion of haemolytic end-products, probably unsaturated fatty acids. Incomplete oxidation may be the reason for the toxic products of many other worms. In *Echinococcus* the permeability of the cyst wall must be responsible for the sensitization of the host against hydatid fluid. Von Brand also stresses the value of sense-physiological studies on developmental stages, and the almost complete lack of studies on the metabolic interrelationships between developmental stages and intermediate hosts. H.C.

(245f) The main histopathological changes caused by helminths, viz. degeneration and alteration in which cell proliferation is prominent, can be reproduced experimentally by introducing helminth substance into host animals. Growth stimulation resulting in malignant tumours has not yet been induced. In tissue cultures exposed to the action of helminth substances, retardation or inhibition of growth can be observed, but Hoeppli failed to obtain definite growth stimulation of cells, even with extracts of *Cysticercus fasciolaris*. H.C.

(245g) War-time research on human schistosomiasis revealed new foci in Spanish Morocco, Angola, Eritrea, China, the Philippines, Dominican Republic, Venezuela, and Brazil. In India two extensive investigations failed to indicate any local intermediaries. In the U.S.A. a species of *Tropicorbis* is capable of transmitting *Schistosoma mansoni* and in *Pomatiopsis lapidaria* partial development of *S. japonicum* was noted. More efficient techniques for the isolation of eggs were developed. Complement fixation, precipitin tests, and rectal biopsy were successfully employed in diagnosis. Cases in American troops exposed for the first time, gave valuable data on the incubation period and acute symptomatology. Chemotherapy is still unsatisfactory, although the rapid treatment recently introduced gave promising results. Methods of protecting persons unavoidably exposed to infection were devised. H.C.

(245h) Azim estimates that 14,000,000 Egyptians (60%) are bilharziasis carriers. Change from basin to perennial irrigation has increased the spread of vector and disease. Even in isolated foci, such as oases, control has proved difficult. Owing to the resistance of the snails to desiccation and the labour involved in clearing vast territories, biological control is impracticable. Copper sulphate does not kill the eggs and extensive preparations are needed in the streams. Antimony treatment has only benefited sufferers with acute symptoms and surgical complications. Clinical attendance has been irregular, the percentage of complete cures doubtful and reinfections high. Until there are radical changes in social conditions, health propaganda and prevention of soil and water pollution will not be effective. H.C.

(245i) Schistosomes utilize in one hour more than one-tenth of their dry weight of glucose, which is converted mostly to lactic acid. The glycolysis rate is the same in air as in nitrogen, and is unaffected by respiratory inhibitors such as cyanine dyes. The "Pasteur effect", therefore, does not occur in *Schistosoma mansoni*. Sodium, potassium, calcium, and magnesium, and a pH between 7.3 and 8.75 are essential for optimal rates of glycolysis and respiration. The optimal pH range for motility lies between 6.6 and 8.4. Fouadin, in low concentrations, inhibits respiration of *S. mansoni* but inhibits glycolysis much less effectively. As glycolysis appears to be more important than respiration for survival, this might explain

the ineffectiveness of Fouadin except in doses bordering on toxic levels. Vitamin K in low concentrations inhibits glycolysis but not respiration. H.C.

(245j) Of the 38 species of helminths infecting man in the Philippines, 15 are trematodes, 11 cestodes, and 12 nematodes. *Schistosoma japonicum*, *Paragonimus westermani*, *Wuchereria bancrofti*, and the hookworms are more prevalent in areas where the annual rainfall is more uniformly distributed. In these regions helminthiases are of greater medical importance. Schistosomiasis japonica is endemic in Luzon, Mindoro, Samar, Leyte, and Mindanao. Chemical destruction of the snail intermediate host, *Oncomelania quadrasi*, is considered feasible. The apparent rarity of paragonimiasis may be due to lack of detailed surveys. Multiple helminth infections are believed to contribute to the high morbidity and mortality rates. Filariasis is rarely accompanied by elephantiasis and other clinical symptoms, and microfilariae exhibit a modified periodicity. H.C.

(245k) Cruz has reviewed the available facts relating to the pathogenicity of hookworm disease and refers to the many contradictions and misunderstandings in the more recent contributions. The disease cannot be considered as a simple helminthiasis, but is primarily a deficiency disease in which a deficient diet fails to replace the drained iron reserves. Prophylaxis must consist in the periodic administration of iron without relation to attempts to prevent infection, and treatment of severe hookworm anaemia must always begin by iron therapy, which should only then be followed by the administration of anthelmintics. H.C.

(245l) Bhalerao briefly summarizes the clinical symptoms, pathology, diagnosis, treatment, host distribution, prophylaxis, and vectors of animal schistosomiasis. H.C.

246—KOUTZ, F. R. & REBRASSIER, R. E., 1948.—“Identification and life cycles of parasites affecting domestic animals.” Columbus: Ohio State University Press, revised edit., v + 104 pp.

247—WESTON, W. A. R. DILLON & TAYLOR, R. E., 1948.—“The plant in health and disease.” London: Crosby Lockwood & Son Ltd., xii + 173 pp., 21s.